Hardware and Software Guide

HP Compaq Notebook Series

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This guide explains how to identify and use notebook hardware features, including connectors for external devices, and provides settings and procedures for managing notebook power and security. It also includes power and environmental specifications, which may be helpful when traveling with the notebook, as well as instructions for obtaining system information and using setup utilities to help detect, solve, and prevent problems.

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Component ID

Top Components

Lights
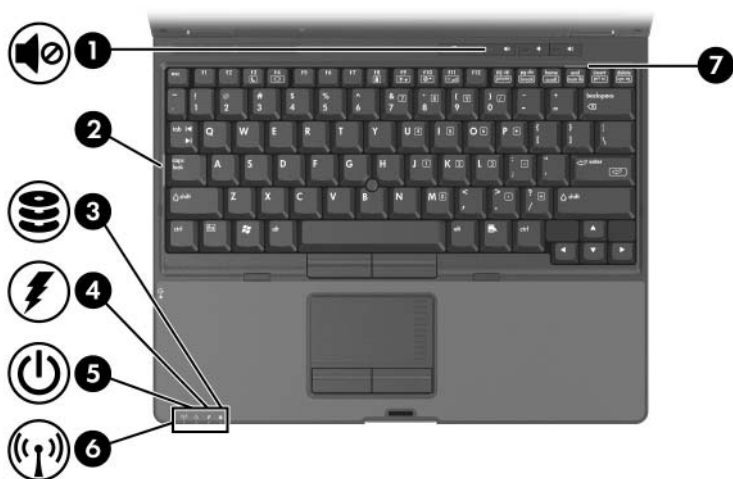
	Component	Description
❶	Volume mute light	On: System sound is turned off.
❷	Caps lock light	On: Caps lock is on.
❸	IDE (Integrated Drive Electronics) drive light	On: A drive in the hard drive bay is being accessed.

(Continued)

Component		Description
❹	Battery light	Amber: A battery pack is charging.
		Green: A battery pack is close to full charge capacity.
		Blinking amber: A battery pack that is the only available power source has reached a low-battery condition. When the battery reaches a critical low-battery condition, the battery light begins blinking more quickly.
		Off: If the notebook is connected to an external power source, the light is turned off when all batteries in the notebook are fully charged. If the notebook is not connected to an external power source, the light is turned off until the battery reaches a low-battery condition, when the light begins blinking amber.
❺	Power/standby light	Green: The notebook is on.
		Blinking green: The notebook is in standby mode.
❻	Wireless light*	On: One or more optional internal wireless devices, such as a WLAN device and/or Bluetooth® device, are turned on.
❼	Num lock light	On: Num lock is on or the embedded numeric keypad is enabled.

*For information about establishing a wireless link, refer to Chapter 11, "Wireless (Select Models Only)."

Pointing Devices

	Component	Description
❶	Pointing stick	Moves the pointer.
❷	Left pointing stick button	Functions like the left button on an external mouse.
❸	TouchPad*	Moves the pointer. Can be set to perform other mouse functions, such as scrolling, selecting, and double-clicking.
❹	Left TouchPad button*	Functions like the left button on an external mouse.
❺	Right TouchPad button*	Functions like the right button on an external mouse.

(Continued)

Component	Description
❻ TouchPad scroll zone*	Scrolls upward or downward.
❼ Right pointing stick button	Functions like the right button on an external mouse.

*This table describes default settings. For information about changing the functions of TouchPad features, refer to the "Setting Mouse Properties" section in Chapter 3, "Pointing Devices and Keyboard."

Buttons

Component		Description
❶	Presentation mode button	Turns on Presentation mode.
❷	Volume mute button	Mutes or restores volume.
❸	Volume down button	Decreases notebook sound.
❹	Volume up button	Increases notebook sound.

Keys
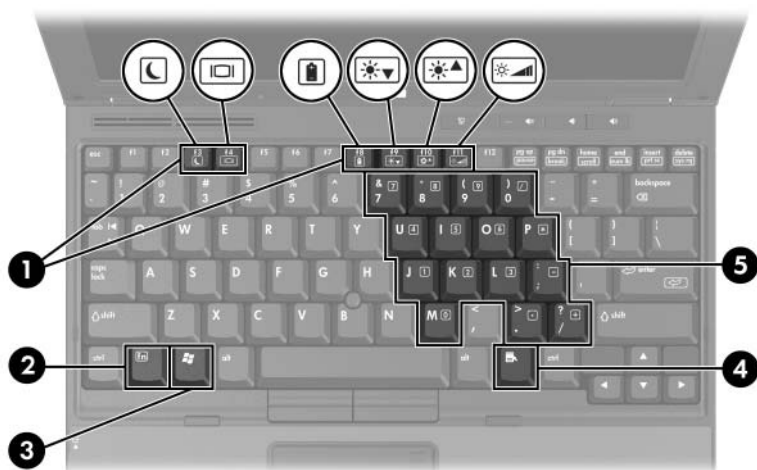
	Component	Description
❶	Function keys (6)	Perform system and application tasks. When combined with the **fn** key, the function keys **f3, f4,** and **f8** through **f11** perform additional tasks as hotkeys.
❷	**fn** key	Executes frequently used system functions when pressed in combination with a function key or the **esc** key.
❸	Windows logo key	Displays the Microsoft® Windows® Start menu.
❹	Windows applications key	Displays a shortcut menu for items beneath the pointer.
❺	Embedded numeric keypad	Can be used like an external numeric keypad.

Front Components

Component	Description
❶ Infrared port	Provides wireless communication between the notebook and an optional IrDA-compliant device.
❷ Bluetooth module (select models only)	Sends and receives Bluetooth device signals.
	⚠ **Exposure to Radio Frequency Radiation.** The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. To avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antennae should be not less than 20 cm (8 inches) during normal operation, including when the notebook display is closed.
❸ Display release button	Opens the notebook.

Rear Components

	Component	Description
❶	USB port	Connects USB 1.1- and 2.0-compliant devices to the notebook using a standard USB cable.
❷	RJ-11 (modem) jack	Connects a modem cable.
❸	RJ-45 (network) jack	Connects a network cable.
❹	Power connector	Connects an AC adapter, an optional AC adapter, or an optional power cable.
❺	External monitor port	Connects an optional VGA external monitor or projector.
❻	S-Video-out jack	Is a 7-pin, dual-purpose jack.
		It connects an optional S-Video device, such as a television, VCR, camcorder, overhead projector, or video capture card, with an optional, standard (4-pin) S-Video cable.
		The extra 3 pins also enable an optional S-Video-to-composite adapter to be used with the notebook.

Right-Side Components
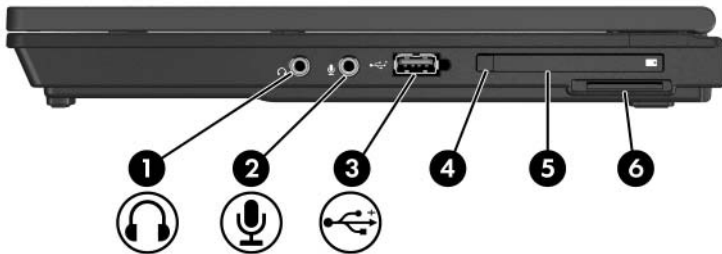
Component	Description
❶ Audio-out (headphone) jack	Connects optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
❷ Audio-in (microphone) jack	Connects an optional monaural (single sound channel) or stereo (dual sound channel) microphone.
❸ USB port	Connects USB 1.1- or 2.0-compliant devices to the notebook using a standard USB cable, or connects an optional external MultiBay or external MultiBay II to the notebook. This USB port is a powered port that can be used without external power.
❹ PC Card eject button	Ejects PC Cards from the PC Card slot.
❺ PC Card slot	Supports optional Type I, Type II, 32-bit (CardBus), or 16-bit PC Cards.
❻ Digital Media Slot	Accepts SD (Secure Digital) Memory Cards or MultiMediaCards.

Left-Side Components
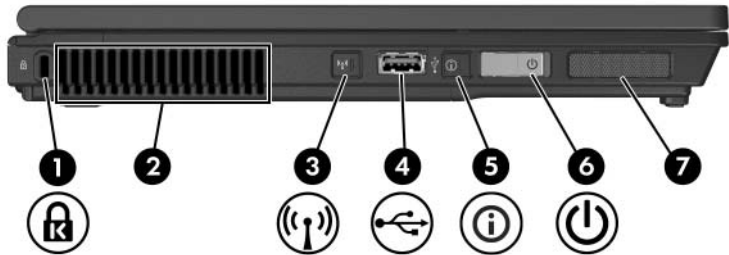
Component	Description
❶ Security cable slot	Attaches an optional security cable to the notebook. ⚠ Security solutions are designed to act as deterrents. These deterrants may not prevent a product from being mishandled or stolen.
❷ Vent	Enables airflow to cool internal components. ⚠ To prevent overheating, do not obstruct vents. Using the notebook on a soft surface, such as a pillow, blanket, rug, or thick clothing, may block airflow.

(Continued)

Component		Description
❸	Wireless button (select models only)*	Turns the wireless functionality of the WLAN or Bluetooth device on or off, but does not establish a connection. ✎ To establish a wireless connection, a wireless network must already be set up. For information about establishing a wireless connection, refer to Chapter 11, "Wireless (Select Models Only)."
❹	USB port	Connects a USB 1.1- and 2.0-compliant device to the notebook using a standard USB cable.
❺	Info Center button	Enables you to view a list of commonly used software solutions.
❻	Power switch*	When the notebook is ■ Off, slide toward the front of the notebook and release to turn on the notebook. ■ In standby, slide toward the front of the notebook and release to exit standby. ■ In Hibernation, slide toward the front of the notebook and release to exit Hibernation. If the notebook has stopped responding and Microsoft Windows shutdown procedures cannot be used, slide toward the front of the notebook and hold for 4 seconds to turn off the notebook.
❼	Speaker	Produces notebook sound.

*This table describes default settings. For information about changing the functions of the power features, refer to the "Power Options" section in Chapter 2, "Power." For information about changing the functions of the wireless features, refer to Chapter 11, "Wireless (Select Models Only)."

Bottom Components
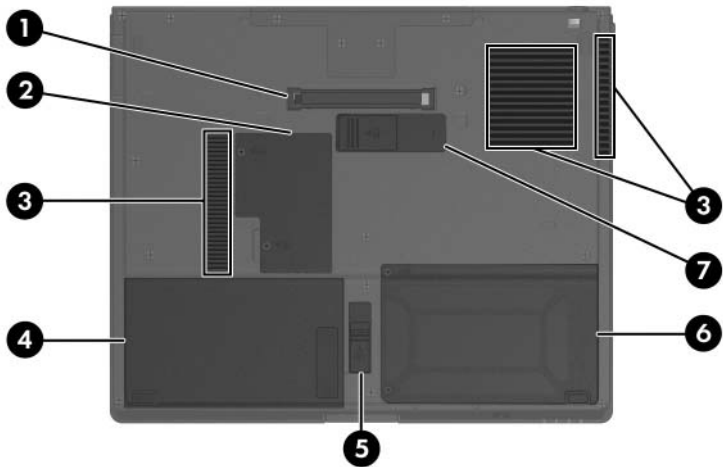
	Component	Description
❶	Docking connector	Connects the notebook to an optional docking device.
❷	Expansion memory module compartment	Contains one expansion memory module slot.
❸	Vents (3)	Enable airflow to cool internal components.
		△ To prevent overheating, do not obstruct vents. Using the notebook on a soft surface, such as a pillow, blanket, rug, or thick clothing, may block airflow.
❹	Primary battery bay	Holds the primary battery pack.

(Continued)

	Component	Description
❺	Primary battery release latch	Releases the primary battery pack from the battery bay.
❻	Hard drive bay	Holds the primary hard drive.
❼	Travel battery connector	Connects an optional travel battery.

Wireless Antennae

Component	Description
Antennae (2) (select models only)*	Send and receive wireless device signals.
	⚠ **Exposure to Radio Frequency Radiation.** The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. To avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antennae should be not less than 20 cm (8 inches) during normal operation, including when the notebook display is closed.

*The antennae are not visible from the outside of the notebook. For optimal transmission, keep the areas immediately around the antennae free from obstructions.

Magnets
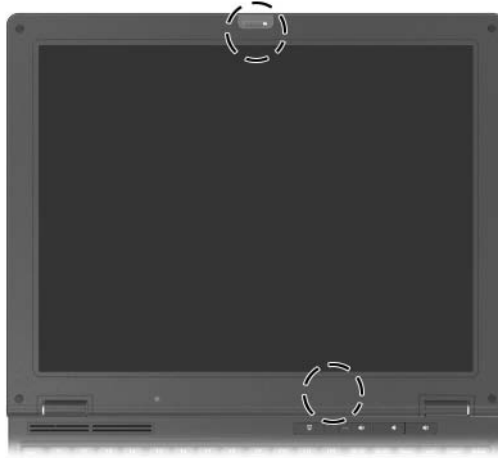
Component	Description
Magnets (2)	Top: Engages the display latch.
	Bottom: Initiates standby if the display is closed while the notebook is turned on.
	⚠ Keep diskettes and other magnetic media away from magnetic fields, which can erase your data.

Additional Hardware Components
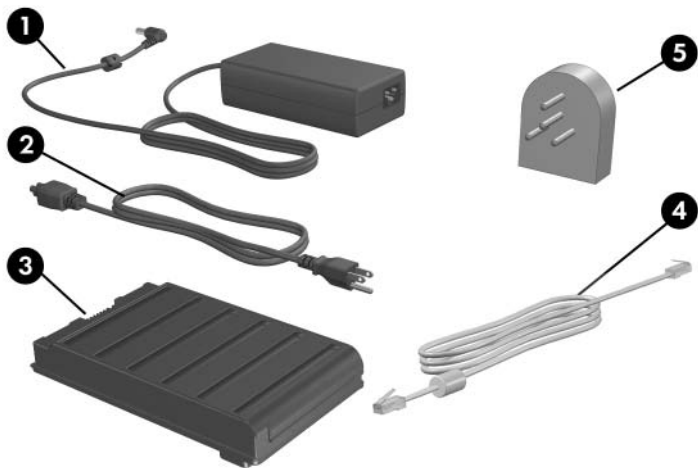
	Component	Description
❶	AC adapter	Converts AC power to DC power.
❷	Power cord*	Connects an AC adapter to an AC outlet.
❸	Battery pack*	Powers the notebook when the notebook is not connected to external power.
❹	Modem cable*	Connects the RJ-11 (modem) jack to an RJ-11 telephone jack or to a country-specific modem adapter.
❺	Country-specific modem adapter (included by region as required)*	Adapts the modem cable to a non-RJ-11 telephone jack.

*Power cords, modem cables, and modem adapters vary in appearance by region and country. Battery packs vary by model.

2

Power

Power Control and Light Locations
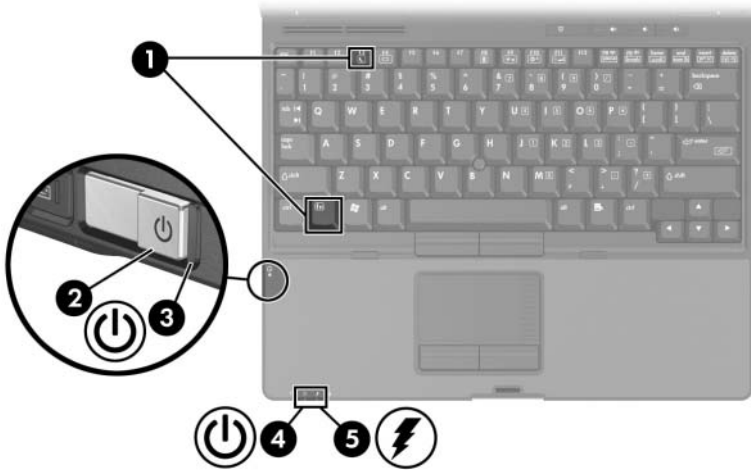
Component		Description
❶	fn+f3	Initiates standby.

(Continued)

	Component	Description
❷	Power switch	When the notebook is
		■ Off, slide toward the front of the notebook and release to turn on the notebook.
		■ In standby, slide toward the front of the notebook and release to exit standby.
		■ In hibernation, slide toward the front of the notebook and release to exit hibernation.
		If the notebook has stopped responding and Microsoft® Windows® shutdown procedures cannot be used, slide toward the front of the notebook and hold for 4 seconds to turn off the notebook.
❸	Power/standby light	Green: The notebook is on.
		Blinking green: The notebook is in standby mode.
❹	Power/standby light	Green: The notebook is on.
		Blinking green: The notebook is in standby mode.
❺	Battery light	Amber: A battery pack is charging.
		Green: A battery pack is close to full charge capacity.
		Blinking amber: A battery pack that is the only available power source has reached a low-battery condition. When the battery reaches a critical low-battery condition, the battery light begins blinking more quickly.
		Off: If the notebook is connected to an external power source, the light is turned off when all batteries in the notebook are fully charged. If the notebook is not connected to an external power source, the light is turned off until the battery reaches a low-battery condition, when the light begins blinking amber.

Power Sources

The notebook can run on internal or external AC power. The following table indicates the best power sources for common tasks.

Task	Recommended Power Source

Work in most software applications	■ Charged battery pack in the notebook
	■ External power supplied through one of the following devices:
	  ❒ AC adapter
	  ❒ Optional AC Adapter
	  ❒ Optional docking device
	  ❒ Optional automobile or aircraft adapter

Charge or calibrate a battery pack in the notebook	External power supplied through ■ AC adapter ■ Optional AC adapter ■ Optional docking device ■ Optional automobile or aircraft adapter △ To prevent damage to the notebook and aircraft systems, do *not* charge the battery pack while you are using a Combo Adapter on an aircraft.
Install or modify system software or write to a CD	External power supplied through ■ AC adapter ■ Optional docking device

Standby and Hibernation

Standby and hibernation are energy-saving features that conserve power and reduce startup time. They can be initiated by you or by the system. Refer to the "Initiating Standby, Hibernation or Shutdown" section in this chapter for details about when to use each setting.

Standby

⚠️ **CAUTION:** To avoid a complete battery discharge, do not leave your notebook in standby for extended periods. Connect the notebook to an external power source.

Standby reduces power to system components that are not in use. When standby is initiated, your work is saved in random access memory (RAM) and the screen is cleared. When you resume from standby, your work returns to the screen where you left off.

■ Saving your work before initiating standby is not usually necessary but is a recommended precaution.

■ When the notebook is in standby, the power/standby lights flash.

Hibernation

Hibernation saves your work to a hibernation file on the hard drive, and then shuts down the notebook. When you restore from hibernation, your work returns to the screen where you left off. If a power-on password has been set, the password must be entered to restore from hibernation.

You can disable hibernation. However, if hibernation is disabled, and the system reaches a low-battery condition, the system will not automatically save your work while power is on or when standby has been initiated.

In the **Power Options** window, hibernation is not displayed as an option if it has been disabled. You must enable hibernation in order to select it in the **Power Options** window. To verify that hibernation is enabled, select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab. Make sure that the **Enable hibernation** check box is selected.

$\triangle$ **CAUTION:** If the configuration of the notebook is changed during hibernation, resuming from hibernation may not be possible. When the notebook is in hibernation:

■ Do not dock or undock the notebook in a docking device.

■ Do not add or remove memory modules.

■ Do not insert or remove any hard drives.

■ Do not connect or disconnect external devices.

■ Do not insert or remove a PC Card or a Secure Digital (SD) Memory Card.

Initiating Standby, Hibernation or Shutdown

The following sections explain when to initiate standby or hibernation and when to shut down your notebook.

When You Leave Your Work

Initiating standby clears the screen and uses less power than leaving the notebook on. Your work returns instantly to the screen when you resume from standby.

Initiating hibernation clears the screen, saves your work to the hard drive, and uses much less power than standby.

Shutting down the notebook and removing the battery pack is recommended to extend the life of the battery pack when the notebook will be disconnected from external power for an extended period. For details on battery pack storage, refer to the "Storing a Battery Pack" section in this chapter.

When the Power Supply Is Uncertain

Make sure that hibernation remains enabled, especially if you are operating the notebook on battery power and do not have access to an external power supply. If the battery pack gets extremely low, hibernation saves your work to a hibernation file and shuts down the notebook.

HP recommends that if you pause your work when the power supply is uncertain, you do one of the following:

■ Initiate hibernation.

■ Shut down the notebook.

■ Save your work, and then initiate standby.

When Using Infrared Communication or Drive Media

⚠ **CAUTION:** Do not initiate standby or hibernation while using drive media. Doing so may result in possible video and audio degradation and loss of audio or video playback functionality.

Standby and hibernation interfere with the use of infrared and Bluetooth communication, and drive media. Note the following guidelines:

■ If the notebook is in standby or hibernation, you cannot initiate an infrared or Bluetooth transmission.

■ If standby or hibernation is accidentally initiated while a drive medium (such as a diskette, CD, or DVD) is in use:

❏ Your playback may be interrupted.

❏ You may see a warning message: "Putting the computer into Hibernation or standby may stop the playback. Do you want to continue?" Select **No.**

❏ You may need to restart the playback to resume audio and video.

Default Power Settings

The following tables describe the factory power settings on the notebook. You can change many of these settings according to your preference. For more information on changing power settings, refer to the "Power Options" section in this chapter.

Turning the Notebook or Display On or Off

Task	Procedure	Result
Turn on the notebook.	Slide the power switch toward the front of the notebook.	■ The power/standby lights are turned on. ■ The operating system loads.
Turn off the notebook.*	Save your work and close all open applications. Then ■ Slide the power switch toward the front of the notebook and follow the on-screen directions (if displayed) for shutting down the notebook. ■ Shut down the notebook through the operating system. Select **Start > Turn Off Computer > Turn Off > OK.**	■ The power/standby lights are turned off. ■ The operating system shuts down. ■ The notebook is turned off.
Turn off the display while the power is on.	Close the notebook.	Closing the notebook activates the display switch, which turns off the display. This conserves battery power.

*If the system is unresponsive and you are unable to shut down the notebook with these procedures, refer to the "Using Emergency Shutdown Procedures" section in this chapter.

Initiating or Restoring from Hibernation

Task	Procedure	Result
Initiate hibernation.	■ Select **Start > Turn Off Computer > Hibernate > OK.** (If the Hibernate option is not displayed, press and hold the **shift** key.) ■ If hibernation has been configured, slide the power switch toward the front of the notebook.	■ The power/ standby lights are turned off. ■ The screen clears.
Allow the system to initiate hibernation (with hibernation enabled).	No action required. ■ If the notebook is running on battery power, the system initiates hibernation after 30 minutes of notebook inactivity or when the battery pack(s) reach a critical low-battery condition. ■ If the notebook is connected to external power, the system does not initiate hibernation. ■ Power settings and timeouts can be changed in the **Power Options** window.	■ The power/ standby lights are turned off. ■ The screen clears.
Restoring from user-initiated or system-initiated hibernation.	Slide the power switch toward the front of the notebook. ✎ If the system initiated hibernation because of a critical low-battery condition, connect external power or insert a charged battery pack before you slide the power switch.	■ The power/ standby lights are turned on. ■ Your work returns to the screen.

Initiating or Resuming from Standby

Task	Procedure	Result
Initiate standby.	■ Slide the power switch toward the front of the notebook. ■ With the notebook on, press **fn+f3.** ■ Select **Start > Turn Off Computer > Standby > OK.** (If the standby option is not displayed, press the **shift** key.)	■ The power/standby lights blink. ■ The screen clears.
Allow the system to initiate standby.	No action required. ■ If the notebook is running on battery power, the system initiates standby after 10 minutes of notebook inactivity. (Default setting) ■ If the notebook is attached to external power, the system does not initiate standby. ■ Power settings and timeouts can be changed in the **Power Options** window.	■ The power/standby lights blink. ■ The screen clears.
Resume from user-initiated or system-initiated standby.	Slide the power switch toward the front of the notebook.	■ The power/standby lights are turned off. ■ Your work returns to the screen.

Using Emergency Shutdown Procedures

△ **CAUTION:** Emergency shutdown procedures result in the loss of unsaved data.

If the notebook is unresponsive and you are unable to use normal Windows shutdown procedures, try the following emergency procedures, in the sequence provided:

■ Press **ctrl+alt+delete.** Select **Shut Down.**

■ Slide and hold the power switch toward the front of the notebook for at least 4 seconds.

■ Disconnect the notebook from external power and remove the battery pack. For more information about removing and storing the battery pack, refer to the "Storing a Battery Pack" section in this chapter.

Power Options

Many default power settings can be changed in the **Power Options** window. For example, you can set an audio alert to warn you when the battery pack reaches a low-power condition, or you can change the default settings for the power switch.

By default, when the notebook is on:

■ Pressing the **fn+f3** hotkey, called the "sleep button" in the operating system, initiates standby.

■ The display switch turns off the display. The display switch is activated by closing the display.

Accessing the Power Options Window

To access the Power Options window:

» Right-click the **Power Meter** icon on the notification area (at the far right of the taskbar) and select **Adjust Power Properties.**

– or –

» Select **Start > Control Panel > Performance and Maintenance > Power Options.**

Displaying the Power Meter Icon

The Power Meter icon is on your notification area by default. The icon changes shape to indicate whether the notebook is running on a battery pack or external power. Right-click the icon and select **Adjust Power Properties** to display the **Power Options** window.

To hide or show the Power Meter icon on the notification area:

1. Access the **Power Options** window.

2. Select the **Advanced** tab.

3. Select or clear the **Always show icon** on the taskbar check box.

4. Select **Apply.**

5. Select **OK.**

✎ If you cannot see an icon you have placed on the taskbar, the icon may be hidden. Select the arrow or vertical bar on the taskbar and expand it to view hidden icons.

Setting or Changing a Power Scheme

The Power Schemes tab in the **Power Options** window allows you to set the amount of time that the notebook will allow to pass before entering standby or hibernation. You can assign different schemes depending on whether the notebook is running on a battery pack or external power.

You can also set a power scheme that initiates standby or turns off the display or hard drive after a time interval that you specify.

To set a power scheme:

1. Access the **Power Options** window, and then select the **Power Schemes** tab.

2. Select the power scheme you want to modify, and accept or adjust the default options in the lists on the screen.

3. Select **Apply.**

Using a Security Password

You can add a security feature that prompts you for a password when the notebook is turned on, resumes from standby, or restores from hibernation.

To set a password prompt:

1. Access the **Power Options** window, and then select the **Advanced** tab.

2. Select the check box for **Prompt for password when the computer resumes from standby,** and then select **Apply.**

For more information about using security passwords, refer to Chapter 12, "Security."

Processor Performance Controls (Select Models Only)

On select notebook models, Windows XP supports software that enables you to control processor performance. The central processing unit (CPU) speed can be set for optimal performance or for optimal power conservation.

For example, the software can be set to trigger an automatic change in processor speed when the power source changes from external power to battery pack power, or when the notebook use changes between active and idle.

Processor performance controls are managed in the **Power Options** window.

To access Windows XP processor performance controls:

» Select **Start > Control Panel > Performance and Maintenance > Power Options > Power Schemes** tab.

The power scheme you select determines how the processor performs when the notebook is connected to external power or is running on battery power. Each power scheme for external power or battery power sets a specific processor state.

Different states may be used, depending on whether the notebook is running on external or battery power. After a power scheme has been set, no other intervention is required to control the performance of your notebook processor. The following table describes the processor performance on external and battery power for the available power schemes.

Power Scheme	Processor Performance While on External Power	Processor Performance While on Battery Power
Home/Office Desk	Always runs at the highest performance state.	Performance state is determined based on CPU demand.
Portable/Laptop	Performance state is determined based on CPU demand.	Performance state is determined based on CPU demand.
Presentation	Performance state is determined based on CPU demand.	Runs at the lowest possible performance state.
Always On	Always runs at the highest performance state.	Always runs at the highest performance state.
Minimal Power Management	Performance state is determined based on CPU demand.	Performance state is determined based on CPU demand.
Max Battery	Performance state is determined based on CPU demand.	Runs at the lowest possible performance state.

Battery Packs

When the notebook is connected to external AC power, the notebook runs on AC power. When a charged battery pack is in the notebook and the notebook is not connected to external power, the notebook runs on battery power.

The notebook switches between AC power and battery power according to the availability of an external AC power source. For example, if the notebook contains a charged battery pack and is running on external AC power supplied through the AC adapter, the notebook switches to battery power if the AC adapter is disconnected from the notebook.

You can leave a battery pack in the notebook or in storage, depending on how you work. Keeping a battery pack in the notebook enables the battery pack to charge whenever the notebook is connected to external AC power and also protects your work in case of a power outage.

However, battery packs in the notebook slowly discharge when the notebook is turned off. For this reason, the primary battery pack is not shipped inside the notebook and must be inserted before the notebook can run on battery power.

Identifying Battery Packs

This notebook supports up to 2 battery packs:

■ The primary battery pack is a 6-cell lithium-ion battery pack that can be used only in the battery bay. One primary battery pack is included with the notebook.

■ The travel battery pack is an optional 8-cell lithium-ion battery pack that can only be attached to the bottom of the notebook.

If the notebook will be idle for 2 weeks or more, remove the battery pack and store it as described in the "Storing a Battery Pack" section in this chapter to prolong battery pack life. For more information about leaving your work, refer to the "Initiating Standby, Hibernation or Shutdown" section in this chapter.

✎ Only compatible AC adapters and battery packs should be used with the notebook. For additional information, visit the HP Web site at http://www.hp.com or contact a service partner.

Inserting or Removing a Primary Battery Pack

Ⓐ **CAUTION:** To prevent loss of work when removing a battery pack that is the sole power source, initiate hibernation or turn off the notebook before removing the battery pack.

To insert a primary battery pack:

1. Turn the notebook upside down.
2. Slide the battery pack ❶ into the battery bay until it is seated.
3. Press the battery pack ❷ into the battery bay until the battery pack clicks into place.
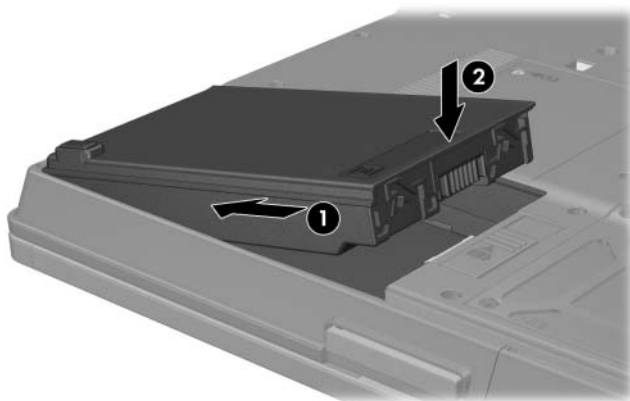
To remove a primary battery pack:

1. Turn the notebook upside down with the front of the notebook toward you.

2. Press the battery release latch ❶ toward the rear of the notebook.

3. Lift and slide the battery pack ❷ out of the notebook.
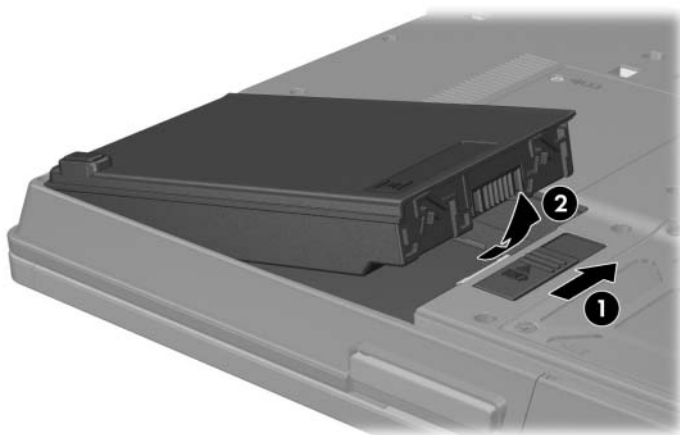
Charging Battery Packs

Multiple battery packs in the system charge and discharge in a preset sequence:

■ Charge sequence:

 1. Primary battery in the notebook battery bay

 2. Travel battery (optional battery pack)

■ Discharge sequence:

 1. Travel battery (optional battery pack)

 2. Primary battery in the notebook battery bay

While a battery pack is charging, the battery light on the notebook is on. The light is turned off when all battery packs are fully charged.

✎ Battery packs can also be charged in the optional HP Universal Charger.

Charging a New Battery Pack

Fully charge the battery pack while the notebook is connected to external power through the AC adapter.

A new battery pack that has been partially but not fully charged can run the notebook, but the battery light may be inaccurate.

The primary battery pack charges when it is inserted into the notebook and the notebook is connected to external power.

Charging an In-Use Battery Pack

To prolong battery life and increase the accuracy of battery charge lights:

■ Allow a battery pack to discharge to 10 percent of a full charge through normal use before charging it.

■ When you charge a battery pack, charge it fully.

Monitoring the Charge of a Battery Pack

This section explains several ways you can determine the amount of charge in your battery pack.

Obtaining Accurate Charge Information

To increase the accuracy of all battery charge displays:

■ Allow a battery pack to discharge to about 10 percent of a full charge through normal use before charging it.

■ When you charge a battery pack, charge it fully.

■ If a battery pack has not been used for one month or more, calibrate the battery pack instead of simply charging it. For calibration instructions, refer to the "Calibrating a Battery Pack" section in this chapter.

Displaying Charge Information on the Screen

This section explains how to access and interpret battery charge displays.

Viewing Charge Displays

To view information about the status of any battery pack in the notebook:

» Double-click the **Power Meter** icon on the notification area.

– or –

» Select **Start > Control Panel > Performance and Maintenance > Power Options > Power Meter** tab.

Interpreting Charge Displays

Most charge displays report battery status as both a percentage and as the number of minutes of charge remaining.

■ The percentage indicates the amount of charge remaining in the battery pack.

■ The time indicates the approximate running time remaining on the battery pack *if the battery pack continues to provide power at the current level.* For example, the time remaining will decrease when you start playing a DVD and will increase when you stop playing a DVD.

Most charge displays identify battery packs by location:

■ Location 1 is the battery pack in the primary battery bay.

■ Location 2 is the optional travel battery pack.

On some displays, a lightning bolt icon may be displayed on the charge display beside a battery pack location. The icon indicates that the battery pack in that location is charging.

Managing Low-Battery Conditions

Some low-battery condition alerts and system responses can be changed in the **Power Options** window of the operating system. The information in this section describes the alerts and system responses set at the factory. Preferences set in the **Power Options** window do not affect lights.

Identifying Low-Battery Conditions

This section explains how to identify low- and critical low-battery conditions.

Low-Battery Condition

When a battery pack that is the only power source for the notebook reaches a low-battery condition, the battery light blinks.

Critical Low-Battery Condition

If a low-battery condition is not resolved, the notebook enters a critical low-battery condition.

In a critical low-battery condition:

■ If hibernation is enabled and the notebook is on or in standby, the notebook initiates hibernation.

■ If hibernation is disabled and the notebook is on or in standby, the notebook remains briefly in standby, and then shuts down and loses your unsaved work.

To verify that hibernation is enabled:

» Select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab. Make sure that the **Enable hibernation** check box is selected.

Resolving Low-Battery Conditions

$\triangle$ **CAUTION:** If the notebook has reached a critical low-battery condition and has initiated hibernation, do not restore power until the power/standby lights are turned off.

When External Power Is Available

To resolve a low-battery condition when external power is available, connect to external power.

When a Charged Battery Pack Is Available

To resolve a low-battery condition when a charged battery pack is available, turn off the notebook or initiate hibernation, insert a charged battery pack, and then turn on the notebook.

When No Power Source Is Available

To resolve a low-battery condition when no power source is available, initiate hibernation, or save your work and shut down the notebook.

When the Notebook Cannot Restore from Hibernation

To resolve a low-battery condition when the notebook lacks the power to exit hibernation:

1. Insert a charged battery pack or connect external power.

2. Exit hibernation by sliding the power switch toward the front of the notebook.

Calibrating a Battery Pack

This section describes when and how to calibrate a battery pack.

When to Calibrate

Even if a battery pack is heavily used, it should not be necessary to calibrate it more than once a month. It is not necessary to calibrate a new battery pack before first use. Calibrate the battery pack under the following conditions:

■ When battery charge displays seem inaccurate.

■ When you observe a significant decrease in battery run time.

■ When the battery pack has been unused for one month or more.

How to Calibrate

To calibrate a battery pack, you must fully charge, fully discharge, and then fully recharge the battery pack.

Charging the Battery Pack

A battery pack can charge whether the notebook is off or in use, but it will charge faster when the notebook is off.

To charge the battery pack:

1. Insert the battery pack into the notebook.

2. Connect the notebook to an AC outlet or an optional HP 90W Auto Adapter. (The battery light on the notebook is turned on.)

3. Leave the notebook connected to external power until the battery pack is fully charged. (The battery light on the notebook is turned off.)

Discharging the Battery Pack

Before you begin a full discharge, disable hibernation.

To disable hibernation:

1. Select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab.

2. Clear the **Enable hibernation** check box.

3. Select **Apply.**

The notebook must remain on while the battery pack is being discharged. The battery pack can discharge whether or not you are using the notebook, but will discharge faster while the notebook is in use.

■ If you plan to leave the notebook unattended during the discharge, save your work before beginning the discharge procedure.

■ If you use the notebook occasionally during the discharge procedure and have set energy-saving timeouts, expect the following performance from your system during the discharge process:

❏ The monitor will turn off after 1 minute.

❏ The hard drive will turn off after 3 minutes.

❏ System-initiated standby will occur after 2 minutes.

To fully discharge a battery pack:

1. Right-click the **Power Meter** icon on the notification area and select **Adjust Power Properties.**

   – or –

   Access the Power Schemes tab by selecting **Start > Control Panel > Performance and Maintenance > Power Options > Power Schemes** tab.

2. Make a note of the 4 settings in the Plugged In column and the 4 settings in the Running on Batteries column so that you can reset them after the calibration.

3. Use the drop-down lists to set the 8 options (4 in each column) to **Never.**

4. Select **OK.**

5. Disconnect the notebook from the external power source, but do *not* turn off the notebook.

6. Run the notebook on battery power until the battery pack is fully discharged. The battery light begins to blink when the battery pack has discharged to a low-battery condition. When the battery pack is fully discharged, the battery light is turned off and the notebook shuts down.

Recharging the Battery Pack

To recharge the battery pack:

1. Connect the notebook to external power and maintain the connection until the battery pack is fully recharged. The battery light on the notebook is turned off.

   You can use the notebook while the battery pack is recharging but the battery pack will charge faster if the notebook is off.

2. If the notebook is off, turn it on when the battery pack is fully charged and the battery light is turned off.

3. Access the Power Schemes tab by selecting **Start > Control Panel > Performance and Maintenance > Power Options > Power Schemes** tab.

4. Refer to the settings you recorded earlier. Reenter the settings that you recorded for the items in the Plugged In column and the Running on Batteries column.

5. Select **OK.**

Ä**CAUTION:** After calibrating the battery pack, reenable hibernation. Failure to reenable hibernation may result in a complete battery drain and potential data loss. To reenable hibernation, select **Start > Settings > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab. Select the **Enable hibernation** check box, and then select **Apply.**

Conserving Battery Power

Using the battery conservation procedures and settings described in this section extends the time that a battery pack can run the notebook from a single charge.

Conserving Power As You Work

To conserve power as you use the notebook:

■ Turn off wireless connections and exit modem applications when you are not using them.

■ Turn off the local area network (LAN) device when you are not using the LAN connection. You can turn off the LAN device with LAN Power Save mode by disconnecting the network cable. For more information, see the "Using LAN Power Save Mode" section in this chapter.

■ Disconnect external devices you are not using that are not connected to an external power source.

■ Stop or remove a PC Card you are not using. For more information, refer to Chapter 6, "PC Cards."

■ Use the **fn+f9** and **fn+f10** hotkeys to adjust screen brightness as you need it.

■ Use optional powered speakers instead of the internal speakers, or use the volume buttons to adjust system volume as you need it.

■ Turn off a device connected to the S-Video-out jack by using the **fn+f4** hotkey or by turning off support for the device in Windows.

■ Run the notebook on external power while formatting a diskette.

■ If you leave your work, initiate standby or hibernation or shut down the notebook.

Selecting Power Conservation Settings

To set the notebook to conserve power:

■ Select a short wait for the screen saver and select a screen saver with minimal graphics and motion. To access screen saver settings:

Select **Start > Control Panel > Appearance and Themes > Display > Screen Saver** tab.

■ Through the operating system, select a Power Scheme with low-power-use settings. Refer to the "Setting or Changing a Power Scheme" section in this chapter.

Using LAN Power Save Mode

Your notebook is equipped with LAN Power Save mode, which enables you to conserve battery power. LAN Power Save mode turns off the LAN device when the notebook is not connected to external power and the network cable is disconnected.

LAN Power Save mode is *enabled by default.* You can change the LAN Power Save mode settings in Computer Setup. For more information, refer to the "Advanced Menu" section in Chapter 13, "Computer Setup."

To initiate LAN Power Save mode:

» Disconnect the network cable.

✎ The LAN device is not listed in Device Manager while LAN Power Save mode is activated. To access the LAN device, do one of the following:

■ Connect external power.

■ Connect a network cable.

■ Disable LAN Power Save mode in Computer Setup.

Storing a Battery Pack

If a notebook will be unused and unplugged for more than 2 weeks, remove any battery packs and store them separately.

⚠ **CAUTION:** To prevent damage to a battery pack, do not expose it to high temperatures for extended periods of time.

High temperatures accelerate the self-discharge rate of a stored battery pack. To prolong the charge of a stored battery pack, place it in a cool, dry place.

Use the following table to estimate how long you can safely store a battery pack. The storage times provided are based on a battery pack that contains 50 percent of a full charge. A fully charged battery pack can be safely stored for longer times; a battery pack containing a lower charge can be safely stored for less time.

Calibrate a battery pack that has been stored for one month or more before using it.

Temperature Range °F	Temperature Range °C	Safe Storage Time
115° to 140°	46° to 60°	Less than 1 month
79° to 113°	26° to 45°	No more than 3 months
32° to 77°	0° to 25°	1 year

Disposing of a Used Battery Pack

⚠️ **WARNING:** To reduce the risk of fire or burns, do not disassemble, crush, or puncture a battery pack; short the external contacts on a battery pack; or dispose of a battery pack in fire or water. Do not expose a battery pack to temperatures higher than 60°C (140°F). Replace only with the battery pack approved for this computer.

When a battery pack has reached the end of its useful life, do not dispose of the battery pack in general household waste. Follow the local laws and regulations in your area for computer battery pack disposal.

In Europe, dispose of or recycle the battery packs by using the public collection system or by returning them to HP, a service partner, or their agents.

3

Pointing Devices and Keyboard

Pointing Devices

The pointing stick and TouchPad controls can be used interchangeably.

Component		Description
❶	Pointing stick	Moves the pointer.
❷	Left pointing stick button	Functions like the left button on an external mouse.

(Continued)

Component		Description
❸	TouchPad*	Moves the pointer. Can be set to perform other mouse functions. Refer to "Setting Mouse Properties" in this chapter.
❹	Left TouchPad button*	Functions like the left button on an external mouse.
❺	Right TouchPad button*	Functions like the right button on an external mouse.
❻	Touchpad scroll zone*	Scrolls upward or downward.
❼	Right pointing stick button	Functions like the right button on an external mouse.

*This table describes default settings. For information about changing the functions of TouchPad features, refer to the "Setting Mouse Properties" section in this chapter.

Using the TouchPad

To move the pointer, slide your finger across the TouchPad surface in the direction you want the pointer to go. Use the left and right TouchPad buttons as you would the left and right buttons on an external mouse. To scroll up and down using the TouchPad vertical scroll zone, slide your finger up or down over the raised area.

Using the Pointing Stick

To move the pointer, press the pointing stick in the direction you want to move the pointer. Use the left and right pointing stick buttons as you would the left and right buttons on an external mouse.

To change the pointing stick cap:

1. Turn off the notebook.
2. Gently pull off the used pointing stick cap.
3. Press a replacement cap into place.

✎ Replacement caps are not included with the notebook.
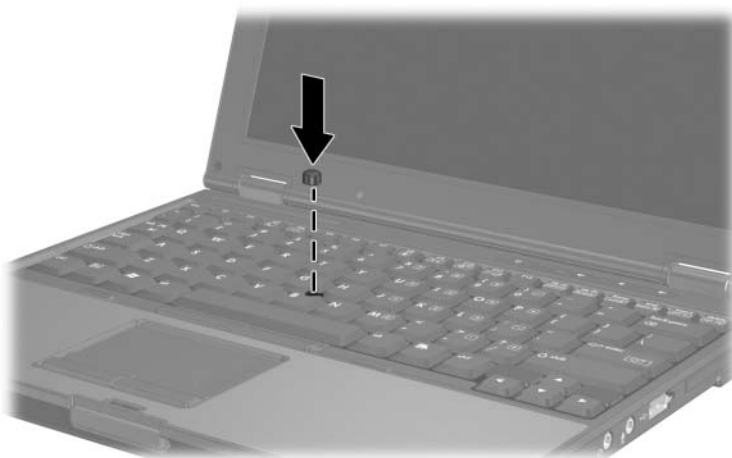
Setting Mouse Properties

Mouse Properties in Windows enables you to customize settings for pointing devices, including

■ Enabling or disabling a pointing device (enabled by default).

■ TouchPad tapping, which enables you to tap the TouchPad once to select an object or twice to double-click an object (enabled by default).

■ Edge motion, which enables you to continue to scroll even though your finger has reached the edge of the TouchPad (disabled by default).

■ Palm Check, which helps prevent moving the pointer unintentionally if your palms contact the TouchPad as you type (disabled by default).

Other features, such as mouse speed preferences and mouse trails, are also found in the **Mouse Properties** window.

To access Mouse Properties:

» Select **Start > Control Panel > Printers and Other Hardware > Mouse.**

Hotkeys

Hotkeys are preset combinations of the **fn** key ❶, one of the function keys ❷, or the **esc** key ❸.

The icons on the **f3**, **f4**, and **f8** through **f11** keys represent the hotkey functions. Hotkey functions and procedures are discussed in the following sections.
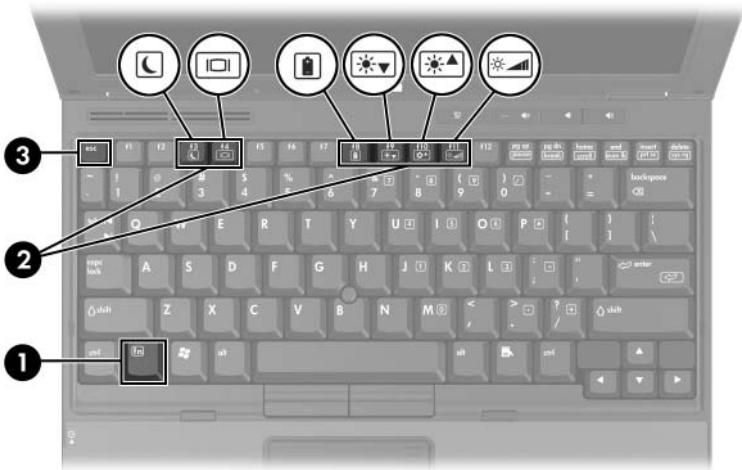
Hotkey Quick Reference

Function	Key Combination to Activate Function	Key Combination to Deactivate Function
Initiate standby	**fn+f3**	Power switch
Switch between notebook display and external display	**fn+f4**	**fn+f4**
View battery information	**fn+f8**	**fn+f8**
Decrease screen brightness	**fn+f9**	**fn+f10**
Increase screen brightness	**fn+f10**	**fn+f9**
Turn ambient light sensor on and off	**fn+f11**	**fn+f11**
Display system information	**fn+esc**	**fn+esc**

Using Hotkey Commands

Initiating Standby (fn+f3)

When the notebook is on, press the **fn+f3** hotkey to initiate standby. When standby is initiated, your work is saved in random access memory (RAM), the screen is cleared, and power is conserved. While the notebook is in standby, the power/standby lights blink.

To exit standby, slide the power switch toward the front of the notebook.

The **fn+f3** hotkey is set at the factory to initiate standby. The function of the **fn+f3** hotkey, called the "sleep button" in Windows, can be changed. For example, the **fn+f3** hotkey can be set to initiate hibernation instead of standby. For more information about standby, hibernation, and changing the function of the **fn+f3** hotkey, refer to Chapter 2, "Power."

Switching Displays (fn+f4)

The **fn+f4** hotkey switches the image among display devices connected to the external monitor port or the S-Video-out jack on the notebook. For example, if an external monitor is connected to the notebook, pressing the **fn+f4** hotkey multiple times toggles the image between the notebook display, the external monitor display, and a simultaneous display on both the notebook and the monitor.

Most external monitors receive video information from the notebook using the external VGA video standard. The **fn+f4** hotkey can also toggle images among other devices receiving video information from the notebook.

The following 5 video transmission types, with examples of devices that use them, are supported by the **fn+f4** hotkey:

■ LCD (notebook display)

■ External VGA (most external monitors)

- S-Video (televisions, camcorders, VCRs, and video capture boards with S-Video-in jacks)
- Composite video (televisions, camcorders, VCRs, and video capture boards with composite-video-in jacks)
- DVI-D (external monitors that support the DVI-D interface)

✎ Composite video and DVI-D can be connected to the notebook only when the notebook is docked in an optional docking device.

Viewing Battery Charge Information (fn+f8)

Press **fn+f8** to display charge information for all installed battery packs. The display indicates which battery packs are charging and reports the amount of charge remaining in each battery pack.

Battery pack locations are indicated by number:

- Location 1 is the primary battery pack.
- Location 2 is the travel battery pack.

Decreasing Screen Brightness (fn+f9)

Press **fn+f9** to decrease screen brightness. Hold down the hotkey to decrease the brightness level incrementally.

Increasing Screen Brightness (fn+f10)

Press **fn+f10** to increase screen brightness. Hold down the hotkey to increase the brightness level incrementally.

Activating the Ambient Light Sensor (fn+f11)

Press **fn+f11** to turn on and off the ambient light sensor. For more information about the ambient light sensor, refer to the "Using Ambient Light Sensor" section in this chapter.

Displaying System Information (fn+esc)

Press **fn+esc** to display information about system hardware components and software version numbers. Press **fn+esc** a second time to remove the system information from the screen.

✎ The system BIOS date is the version number of the system ROM. The BIOS date may display in a decimal format, such as 10/19/2002 F.07.

Using Hotkeys with External Keyboards

The hotkeys available for use with optional external keyboards differ depending on the type of external keyboard you use. USB keyboards support only the hotkey functions controlled by the Quick Launch Buttons control panel. For more information about the Quick Launch Buttons control panel, refer to the "Quick Launch Buttons Software" section later in this chapter.

The following table describes how certain hotkeys and shortcut keys are used on external keyboards:

Notebook Keys	External Keyboard Keys
fn+f3	**scroll lock+scroll lock+f3***
fn+f4	**scroll lock+scroll lock+f4***
fn+f8	**scroll lock+scroll lock+f8**
fn+f9	**scroll lock+scroll lock+f9***
fn+f10	**scroll lock+scroll lock+f10***
fn+f11	**scroll lock+scroll lock+f11**
fn+esc	**scroll lock+scroll lock+esc**
Applies to PS/2 keyboards when used with an optional docking station.	

Quick Launch Buttons

Identifying Quick Launch Buttons

The notebook has 2 Quick Launch buttons that open frequently used applications when you press them.
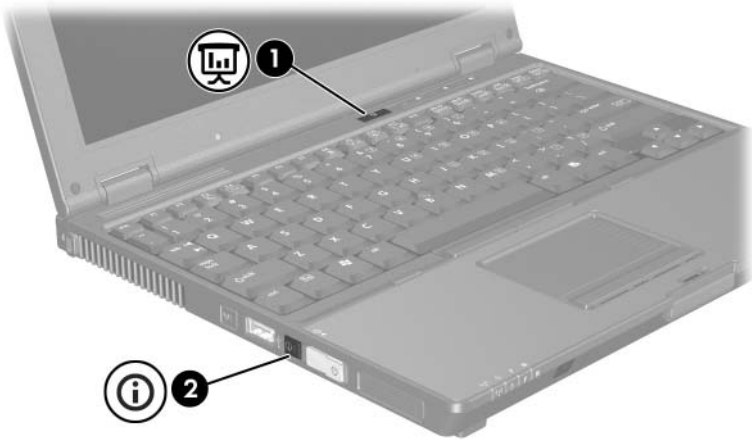
Component	Description
❶ Presentation mode button	Starts Presentation mode, which optimizes for an external monitor or projects and opens a user-defined program such as Microsoft PowerPoint.
❷ Info Center button	Enables you to view a list of commonly used software solutions.

Quick Launch Buttons Software

You can use the Quick Launch Buttons software to

■ Change Presentation mode settings.

■ Set advanced preferences, including

❏ Quick Launch Buttons icon.

❏ Ambient light sensor.

The following sections provide instructions for setting preferences within the control panel. For additional on-screen information about any item on the control panel, select the help button in the upper-right corner of the window. The Help button is identified by a question mark icon.

Accessing the Quick Launch Buttons Software

You can access the Quick Launch Buttons software from the Start button or from an icon that you can display in the notification area (at the far right of the taskbar) or Windows desktop. To access the Quick Launch Buttons software from the Start button:

» Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons.**

Displaying the Quick Launch Buttons Icon

To show or hide the Quick Launch Buttons Properties icon in the notification area (at the far right of the taskbar) or your Windows desktop:

1. Open the Quick Launch Buttons control panel:

   ❏ Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons.**

   – or –

   ❏ Select the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

2. Select the **Advanced** tab.

   On the Advanced tab you can display or hide the Quick Launch Buttons icon in the notification area (at the far right of the taskbar), or on the desktop.

   ❏ To display the icon:

   Select the **Show icon on the taskbar** or **Show icon on the desktop** check box.

   ❏ To hide the icon:

   Clear the **Show icon on the taskbar** or **Show icon on the desktop** check box.

3. To save your preferences and close the display, select **OK.**

Using Presentation Mode

The Presentation mode button toggles Presentation mode on and off. Turning Presentation mode on opens an application, folder, file, or Web site that you specify. The image simultaneously displays on the notebook screen and on an external device connected to the external monitor port or S-Video-out jack on the rear panel, or to display ports and jacks on an optional docking device.

When you first select the Presentation mode button, the **Presentation Settings** dialog box displays. In this dialog box, you can

■ Set the program to start when the button is pressed.

■ Choose a power scheme.

■ Choose whether you want to show the **Presentation Settings** dialog box each time you press Presentation mode button.

✎ If you do not select this option, each time you press the Presentation mode button, the **Presentation Settings** dialog box displays and you have to select **Continue** to open the program, application, folder, file, or Web site you have selected to start when the button is pressed.

■ Automatically switch to an external display.

You can modify the Presentation mode settings using the Quick Launch Button control panel. Refer to "Setting the Presentation Mode Button" in this chapter for information on setting Presentation mode settings.

Setting the Presentation Mode Button

To set an application, folder, file, or Web site to start when the Presentation mode button is pressed:

1. Open the Quick Launch Buttons control panel:

   ❏ Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons.**

   – or –

   ❏ Select the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

2. Select the **Presentation** tab.

3. In the box under Program to Start, add the application, folder, file, or Web site you want to start when the Presentation mode button is pressed, or select **Browse** to view available applications, folders, files, or Web sites.

4. To save your preferences and close the display, select **OK.**

Changing the Power Scheme

By default the Presentation power scheme is selected when the Presentation mode button is pressed. To change the power scheme:

1. Open the Quick Launch Buttons control panel:

   ❏ Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons.**

   – or –

   ❏ Select the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

2. Select the **Presentation** tab.

3. Select an option from the drop-down list box, or select **Power Options** to open the Microsoft Power Options control panel to view or change the current power scheme.

4. To save your preferences and close the display, select **OK.**

Showing the Welcome Screen

You can choose to show the **Quick Launch Buttons Properties** dialog box each time you press the Presentation mode button. By default, this option is turned off.

To turn it on, select the check box next to **Show Welcome Screen when Presentation mode button is pressed.**

Switching to an External Display

By default, the Automatically switch to external display setting in the Presentation tab is not selected. When you press the Presentation mode button, the application, folder, file, or Web site you selected in the Program to Start setting opens.

If you select the **Automatically switch to external display setting** and press the Presentation mode button, the display is switched to the external display connected to your notebook and the application, folder, file, or Web site you selected in the Program to Start setting opens.

Using Ambient Light Sensor

The notebook features a built-in light sensor that enables the notebook to automatically adjust the screen brightness according to the ambient lighting level. When the lighting of your environment changes, the ambient light sensor detects the change and automatically adjusts the screen brightness.

You can turn the ambient light sensor on and off in 3 ways:

■ By pressing **fn+f11**

■ Through the Quick Launch Buttons control panel

■ By using the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

✎ To turn on and off the ambient light sensor using the Quick Launch Buttons control panel or the Quick Launch icon, the Quick Launch Buttons software must be installed.

To turn the ambient light sensor on and off using the ambient light sensor hotkeys, press **fn+f11.**

You can turn the ambient light sensor on and off using the Quick Launch Buttons software:

1. Open the Quick Launch Buttons software:

   ❏ Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons.**

   – or –

   ❏ Select the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

2. Select the **Advanced** tab.

3. Select or clear the **Enable Ambient Light Sensor** check box.

4. Select **Apply,** and then select **OK.**

You can turn the ambient light sensor on and off using the Quick Launch Button**s** icon:

1. Right-click the Quick Launch Buttons icon in the notification area (at the far right of the taskbar) or Windows desktop.

2. Select **Turn Ambient Light Sensor On** or **Turn Ambient Light Sensor Off.**

Using Quick Tile

Quick Tile enables you to quickly organize and view open windows on your desktop.

1. Open the Quick Launch Buttons software:

   ❏ Select **Start > Control Panel > Printers and Other Hardware > Quick Launch Buttons** icon.

   – or –

   ❏ Double-click the Quick Launch Buttons software icon in the notification area.

2. Select the **Quick Tile** tab.

3. Select the vertical tile or horizontal tile option.

4. Select the software to include from the **Applications currently running** list.

5. Select **OK.**

Using Info Center (Select Models Only)

The Info Center enables you to quickly open the following solutions:

■ Contact HP

■ Data Protection Solutions

■ Help and Support

■ Documentation

■ Options Demo

■ Software Setup

■ Wireless Assistant

■ System Configuration

To access Info Center:

1. Press the Info Center button.

   – or –

   Select **Start > Info Center.**

2. In the Info Center window, select the software application you want to open.

For more information, refer to the Info Center online Help.

Keypads

The notebook has an embedded numeric keypad and also supports an optional external numeric keypad or an optional external keyboard that includes a numeric keypad.

Using the Embedded Numeric Keypad

The 15 keys of the embedded numeric keypad can be used like the keys on an external keypad. When the embedded numeric keypad is turned on, each key on the keypad performs the function indicated by the icon in the upper-right corner of the key.

Item	Component
❶	**fn** key
❷	Num lock light
❸	**num lk** key
❹	Embedded numeric keypad

Enabling and Disabling

Press **fn+num lk** to enable the embedded numeric keypad. The num lock light is turned on. Press **fn+num lk** again to return the keys to their standard keyboard functions.

✎ The embedded numeric keypad does not work while an external keyboard or numeric keypad is connected to the notebook or to an optional docking device.

Switching Key Functions

You can temporarily switch the functions of keys on the embedded numeric keypad between their standard keyboard functions and their keypad functions by using the **fn** key or the **fn+shift** key combination.

■ To change the function of a keypad key to keypad functions while the keypad is off, press and hold the **fn** key while pressing the keypad key.

■ To use the keypad keys temporarily as standard keys while the keypad is on:

❏ Press and hold the **fn** key to type in lowercase.

❏ Press and hold **fn+shift** to type in uppercase.

Using an External Numeric Keypad

Most keys on most external numeric keypads function differently according to whether num lock mode is on or off. For example:

■ When num lock is on, most keypad keys type numbers.

■ When num lock is off, most keypad keys function like the arrow, page up, or page down keys.

When num lock on an external numeric keypad is turned on, the num lock light on the notebook is turned on. When num lock on an external numeric keypad is turned off, the num lock light on the notebook is turned off.

If the external numeric keypad is connected, the embedded numeric keypad cannot be turned on.

Enabling or Disabling Num Lock Mode as You Work

To turn num lock on or off on an external numeric keypad as you work, press the **num lk** key on the external numeric keypad, not on the notebook.

4

Multimedia

Audio Features

The following figure and table describe the audio features of the notebook.
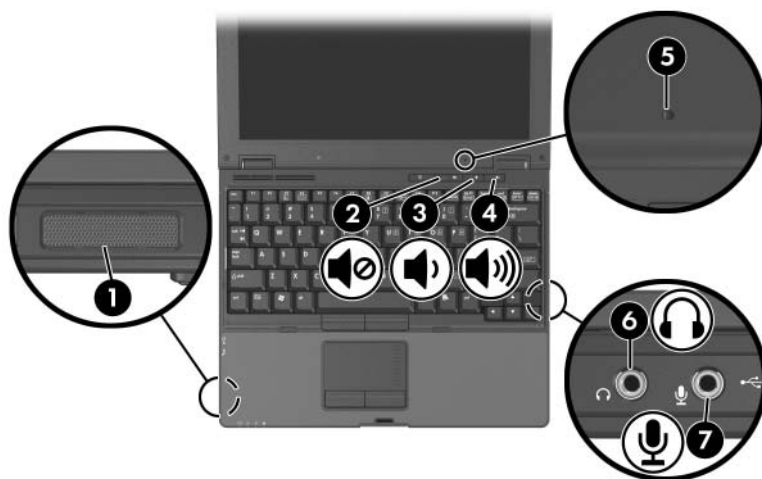
	Component	Description
❶	Speaker	Produces notebook sound.
❷	Volume mute button	Mutes or restores volume.
❸	Volume down button	Decreases notebook sound.

(Continued)

	Component	Description
❹	Volume up button	Increases notebook sound.
❺	Internal microphone	Records sound.
❻	Audio-out (headphone) jack	Connects optional headphones or powered stereo speakers. Also connects the audio function of an audio/video device, such as a television or VCR.
❼	Audio-in (microphone) jack	Connects an optional monaural (single sound channel) or stereo (dual sound channel) microphone.

Using the Audio-In (Microphone) Jack

The notebook is equipped with a stereo microphone jack. When connecting a microphone to the microphone jack, use a microphone with a 3.5-mm plug.

■ If you connect a stereo (dual-channel) microphone, stereo sound will be recorded.

■ If you connect a monaural (single-channel) microphone, left-channel sound will record on both channels.

■ If you connect a dynamic microphone, the recommended sensitivity may not be achieved.

✎ When an external microphone is connected to the notebook, the notebook internal microphone is disabled.

Using the Audio-Out (Headphone) Jack

⚠ **WARNING:** To reduce the risk of personal injury, adjust the volume before putting on headphones or a headset.

⚠ **CAUTION:** To prevent possible damage to an external device, do not plug a single sound channel (monaural) connector into the headphone jack.

The stereo (dual-channel) headphone jack is used to connect headphones, and also to connect the audio input connector of an audio/video device such as a television or VCR.

When connecting a device to the headphone jack:

■ Use only a 3.5-mm stereo plug.

■ For best sound quality, use 24-ohm to 32-ohm headphones.

✎ When the a device is connected to the headphone jack, the internal speaker is disabled.

Adjusting the Volume

To adjust the volume, use any of the following controls:

■ Notebook volume buttons

❑ To mute or restore volume, press the volume mute button.

❑ To decrease the volume, press the volume down button.

❑ To increase the volume, press the volume up button.

■ Windows volume control:

1. Click the **Volume** icon in the notification area (at the far right of the taskbar).

2. Increase or decrease the volume by moving the slider up or down. (You can also select the check box next to **Mute** to mute the volume.)

– or –

1. Double-click the **Volume** icon.

2. In the Volume Control column, increase or decrease the volume by moving the Volume slider up or down. You can also adjust the balance or mute the volume.

✎ Volume can also be adjusted within some applications.

If the Volume icon is not in the notification area, follow the steps below to place it in the notification area.

1. Select **Start > Control Panel > Sounds, Speech, and Audio Devices > Sounds and Audio Devices.**

2. Select the **Volume** tab.

3. Select the check box for **Place volume icon in the taskbar.**

4. Select **Apply.**

Video Features

The notebook features a 7-pin, dual-purpose S-Video-out jack that connects the notebook to an optional S-Video device, such as a television, VCR, camcorder, overhead projector, or video capture card, using an optional, standard (4-pin) S-Video cable. The S-Video-out jack features 3 extra pins that enable an optional S-Video–to–composite adapter to be used with the notebook.

The notebook can support one S-Video device connected to the S-Video-out jack while simultaneously supporting an image on the notebook display and on any other supported external display. The S-Video connection usually provides an image of higher quality than a composite-video connection provides.

To transmit video signals through the S-Video-out jack, you need an S-Video cable, available from most electronics retailers. If you are combining audio and video functions, such as playing a movie from a DVD in an optional MultiBay drive to display on a television, you also need a 3.5mm to RCA audio cable, available from most electronics retailers.

Using the S-Video-Out Jack

To connect a video device to the S-Video-out jack:

1. Plug either end of the S-Video cable into the S-Video-out jack on the notebook.

2. Connect the other end of the cable to the video device, as instructed in the documentation included with the device.

✎ If the S-Video-out jack on the notebook is not accessible because the notebook is docked into an optional docking device, you can connect the device to the S-Video-out jack on the docking device.

Connecting a Monitor, Projector or Television

To connect an external monitor, projector, or television to the notebook, insert the monitor cable into the external monitor port on the back of the notebook.

✎ If a properly connected external monitor, projector, or television does not display an image, try pressing the **fn+f4** hotkey to switch the image to the monitor. You can toggle between displays by pressing the Presentation mode button.

Multimedia Software

✎ To use optical discs (CDs and DVDs), you must use the optical drive in the MultiBay of an optional notebook docking station, or an external MultiBay.

The multimedia software included with your notebook is determined by your region and notebook model.

The following list describes the capabilities of some of the multimedia software that may be included with your notebook.

■ Windows Media Player—Plays audio CDs and DVDs, and copies audio and data CDs. It also plays common audio and video file types, such as MP3, WMA, AVI, MPG, and WMV. This software is included with the Windows operating system.

■ InterVideo WinDVD—Plays video CDs and DVD movies. This software is preinstalled on select notebooks. You can also obtain this software by any of the following methods:

❏ Install WinDVD from the *Application and Driver Recovery* disc provided with most HP notebooks.

❏ If you do not have the *Application and Driver Recovery* disc, contact Customer Care for a copy of the restore solution for your notebook.

❏ Download the software from the HP Web site at http://www.hp.com.

- InterVideo WinDVD Creator Plus—Provides the ability to create, edit, and burn movies to a DVD or video CD. This software is located on the *InterVideo WinDVD Creator* CD, included with select notebooks.

- Sonic RecordNow!—Enables you to create copies of data and audio CDs and DVDs, and create personalized audio CDs and DVDs. RecordNow! is preinstalled on select notebooks.

✎ For more information about using multimedia software, refer to the online Help for the software.

Your notebook may include additional multimedia software. Be sure to explore

- Your desktop icons.

- The software listed at **Start > All Programs.**

- The preloaded items that may be available at **Start > All Programs > Software Setup.**

Observing the Copyright Warning

It is a criminal offense, under applicable copyright laws, to make unauthorized copies of copyright-protected material, including computer programs, films, broadcasts, and sound recordings. This notebook should not be used for such purposes.

Installing Software

To install software from a CD that is included with the notebook:

1. Insert an appropriate optical drive into an optional external MultiBay or MultiBay II.

2. Connect the notebook to a reliable AC outlet.

3. Close any open applications.

4. Insert a software CD into the optional external optical drive.

   ❏ If autorun is enabled, an installation wizard is displayed.

   ❏ If autorun is disabled, select **Start > Run.** Enter:

      x:\setup.exe

      where *x* is your CD drive designation

      and then select **OK.**

5. When the installation wizard is displayed, follow the installation instructions on the screen.

6. Restart the notebook if prompted.

✎ Repeat the installation procedure for all software you want to install.

✎ WinDVD Creator has special drive requirements for proper installation. To install WinDVD Creator, refer to the instructions provided with the *InterVideo WinDVD Creator* CD.

Enabling AutoPlay

AutoPlay is an option in Windows that turns the Autorun feature on or off. Autorun starts a program or plays a title on a disc as soon the disc is inserted into the drive and the drive door is closed. By default, AutoPlay is enabled on the notebook.

To disable AutoPlay or to enable AutoPlay if the feature has been turned off, refer to your operating system documentation or visit the Microsoft Web site at http://www.microsoft.com.

Changing DVD Region Settings

△ **CAUTION:** The region settings on your DVD drive can be changed only 5 times.

■ The region setting you select the fifth time becomes the permanent region setting on the DVD drive.

■ The number of allowable region changes remaining on the drive is displayed in the **Remaining Times Until Permanent** field in the WinDVD window. The number in the field includes the fifth and permanent change.

Most DVDs that contain copyrighted files also contain region codes. The region codes help protect copyrights internationally.

You can play a DVD containing a region code only if the region code on the DVD matches the region setting on your DVD drive.

If the region code on a DVD does not match the region setting on your drive, a "Playback Of Content From This Region Is Not Permitted" message is displayed when you insert the DVD. To play the DVD, you must change the region setting on your DVD drive. DVD region settings can be changed through the operating system or through some DVD players.

Using the Operating System

To change settings through the operating system:

1. Open Device Manager by selecting **Start > My Computer.** Right-click in the window and select **Properties > Hardware** tab > **Device Manager.**

2. Select **DVD/CD-ROM drives,** right-click the DVD drive for which you want to change region settings, and then select **Properties.**

3. Make the desired changes on the DVD **Region** tab.

4. Select **OK.**

5. For additional information, refer to the Windows operating system Help and Support.

Using WinDVD

To change the region settings on a drive using WinDVD:

1. Open WinDVD through one of the following methods:

   ❏ Select the WinDVD Player icon on the notification area.

   ❏ Select **Start > (All) Programs > InterVideo WinDVD > InterVideo WinDVD.**

2. Right-click the WinDVD player window.

3. Select **Setup.**

4. Select the button for the region.

5. Select **OK.**

Using Other DVD Software

To change region settings on a drive using a DVD player other then WinDVD, refer to the documentation provided with the player.

5
Drives

Drive Care

The following sections identify and describe the primary hard drive and the optional external MultiBay or MultiBay II.

Drives are fragile components that must be handled with care. The following cautions apply to all drives. Additional cautions are included with the procedures to which they apply.

△ **CAUTION:** To prevent loss or damage to the notebook or a drive:

■ Handle a drive carefully. Do not drop it.

■ Excessive force can damage drive connectors. When you insert a drive, use only enough force to seat the drive.

■ Do not spray a drive with cleaning fluid or other liquid or expose it to temperature extremes.

■ Do not remove the primary hard drive (the hard drive in the hard drive bay) except for repair or replacement.

■ Electrostatic discharge can damage electronic components. To prevent electrostatic damage to the notebook or a drive:

   ❏ Discharge yourself from static electricity by touching a grounded metal object before handling a drive.

   ❏ Avoid touching the connectors on a drive.

   For more information about preventing electrostatic damage, refer to the *Regulatory and Safety Notices* guide.

■ Avoid exposing a drive to devices with magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. The airport security devices that check carry-on luggage, usually while it is placed on a conveyor belt, use x-rays instead of magnetism and will not damage a drive.

■ If you mail a drive, ship it in packaging that protects it from shock, vibration, temperature, and high humidity. Label the package "FRAGILE."

IDE Drive Light

The IDE drive light is turned on when the primary hard drive is being accessed.

Primary Hard Drive

⚠ **CAUTION:** To prevent system lockup and loss of information, shut down the notebook before removing the hard drive from the hard drive bay. Do not remove the hard drive while the notebook is on, in standby or in hibernation.

⚠ **CAUTION:** To help avoid loss of critical data, initiate standby before you move a notebook or external hard drive from one location to another. To initiate standby, select Start > Turn Off Computer > Standby. For more information on initiating and resuming from standby, refer to Chapter 2, "Power."

The notebook has one hard drive bay that supports only one hard drive. The hard drive in the hard drive bay is the *primary* hard drive.

To remove the primary hard drive:

1. Save your work and then shut down the notebook. (If you are not sure whether the notebook is in hibernation, turn the notebook on by sliding the power switch toward the front of the notebook. Then shut down the notebook through the operating system.)

2. Close the display.

3. Turn the notebook upside down with the front of the notebook toward you.

4. Loosen the 2 hard drive screws ❶.

5. Lift the hard drive cover ❷ away from the notebook.
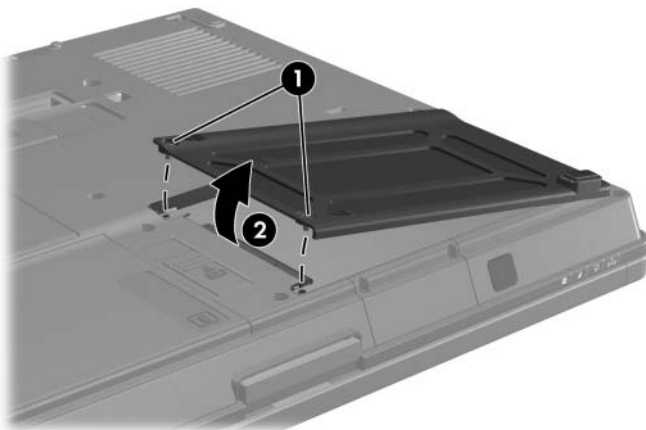
6. Loosen the hard drive screw ❶.

7. Pull the hard drive tab ❷ to the right to disconnect the hard drive.

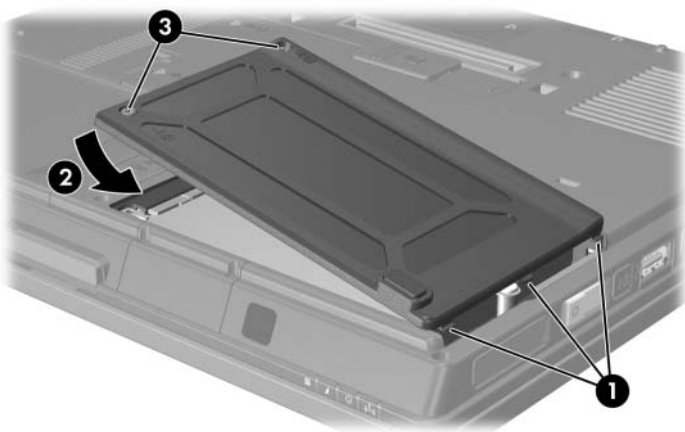8. Lift the hard drive ❸ from the notebook.
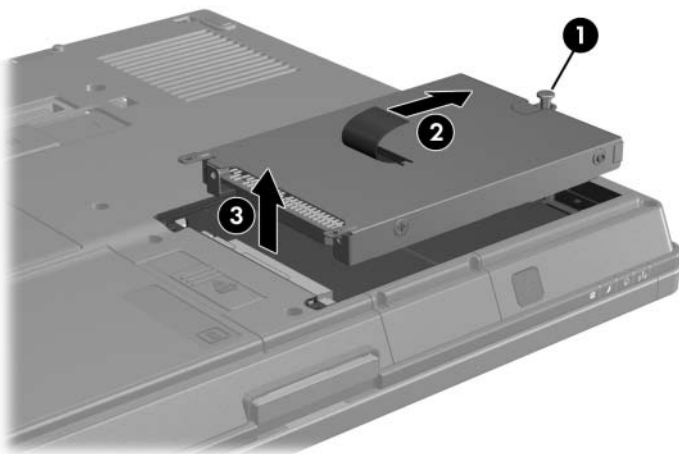
To install a hard drive:

1. Insert a hard drive ❶ into the hard drive bay on the bottom of the notebook.

2. Push the hard drive tab ❷ to the left to connect the hard drive.

3. Tighten the hard drive screw ❸.
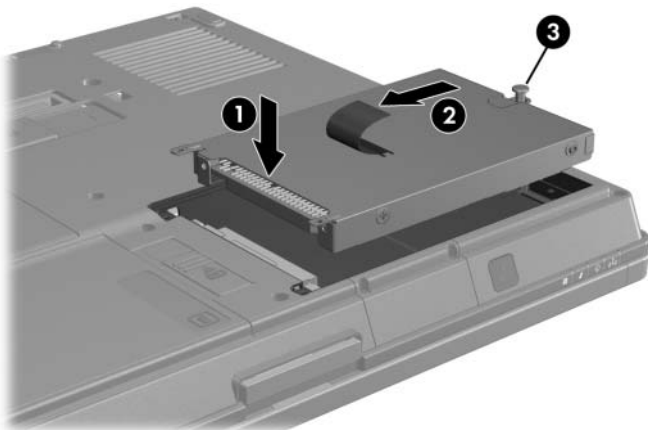
4. Align the tabs ❶ on the hard drive cover with the slots on the notebook.

5. Close the cover ❷.

6. Tighten the hard drive cover screws ❸.

External Drives

Removable external drives enable you to store and access data.

A USB drive can be added by connecting the drive to a USB port on the notebook or on an optional docking device. For information about connecting a USB drive, refer to Chapter 9, "USB Devices."

An external MultiBay or MultiBay II supports any MultiBay or MultiBay II device, including the following:

■ 1.44-megabyte diskette drive

■ Hard drive module (a hard drive with an adapter attached)

■ DVD-ROM Drive

■ DVD/CD-RW Combo Drive

■ DVD+RW/R and CD-RW Combo Drive

■ DVD±RW/R and CD-RW Combo Drive

For more information about the external MultiBay, refer to the documentation that is included with the device.

Optional External Devices

The jacks and connectors described in this guide support standard external devices.

■ For information about which jack or port to use, refer to the documentation included with the device.

■ For information about installing or loading any software required by the device, such as drivers, refer to the documentation included with the device.

To connect a standard external device to the notebook:

1. Turn off the notebook. (If you are not sure whether the notebook is off or in hibernation, turn on the notebook by sliding the power switch toward the front of the notebook. Then shut down the notebook through the operating system.)

2. If you are connecting a powered device, turn off the device.

3. Connect the device to the notebook.

4. If you are connecting a powered device, plug the device power cord into a grounded electrical outlet.

5. Turn on the device.

6. Turn on the notebook.

To disconnect a standard external device from the notebook, turn off the device, and then disconnect it from the notebook.

Optional External MultiBay and External MultiBay II

An external MultiBay or MultiBay II connects to the notebook USB port and enables you to use MultiBay and MultiBay II devices. The notebook provides one powered USB port on the right side. This port provides power to the external MultiBay when used with a powered USB cable. The USB ports on the rear panel and left side of the notebook do not provide power to the external MultiBay. External MultiBays connected to these USB ports must be connected to AC power.

6

PC Cards

What Is a PC Card?

$\triangle$ **CAUTION:** If you install software or enablers provided by a PC Card manufacturer, you may not be able to use other PC Cards. If you are instructed by the documentation included with your PC Card to install device drivers:

■ Install only the device drivers for your operating system.
■ Do not install other software, such as card services, socket services, or enablers, that may also be supplied by the PC Card manufacturer.

A PC Card is a credit card-sized accessory designed to conform to the standard specifications of the Personal Computer Memory Card International Association (PCMCIA).

■ The notebook supports 32-bit (CardBus) and 16-bit PC Cards.

■ The notebook is equipped with one PC Card slot, and it supports one Type I card or one Type II card.

■ Zoomed video PC Cards and 12-V PC Cards are *not* supported.

Insertion

△ **CAUTION:** To prevent damage to the connectors:

■ Use minimal pressure when inserting a PC Card into a PC Card slot.

■ Do not move or transport the notebook while a PC Card is operating.

1. Hold the PC Card label side up with the connector toward the notebook.

2. Gently slide the card into the slot until the card is seated. The operating system will issue a sound to indicate that a device has been detected.

Removal

⚠ **CAUTION:** To prevent loss of work or an unresponsive system, stop the PC Card before removing it.

1. Close all files and applications using the PC Card.

2. Stop the PC Card by selecting the Safely Remove Hardware icon on the taskbar, and then selecting the PC Card. (To display the Safely Remove Hardware icon, select **Show Hidden Icons** on the taskbar.)

3. Press the PC Card eject button ❶. This action extends the button into position for releasing the PC Card.

4. To release the PC Card, press the extended PC Card eject button.

5. Gently slide out the card ❷.

✎ An inserted PC Card uses power even when not in use. To conserve power, stop or remove a PC Card when you are not using it.

7

Digital Memory Cards

What Is a Digital Memory Card?

Digital memory cards are removable thumbnail-sized flash storage devices that provide a convenient method of storing data and sharing it with other devices such as handheld devices, PDAs, cameras, and other SD PCs.

✎ Secure Digital (SD) Memory Cards and MultiMediaCards are the only type of digital media card formats that are supported.

Insertion

△ **CAUTION:** To prevent damage to the connectors:

■ Use minimal pressure when inserting a digital memory card into a Digital Media Slot.

■ Do not move or transport the notebook while a digital memory card is operating.

To insert a digital memory card:

1. Insert the digital memory card into the Digital Media Slot.

2. Slide the card firmly into the slot until the card clicks into place.

Removal

⚠ **CAUTION:** To prevent loss of work or system lockup, stop the digital memory card before removing it.

To remove a digital memory card:

1. Close all files and applications that are using the digital memory card.

2. Stop the digital memory card by selecting the Safely Remove Hardware icon in the taskbar. Then select the digital memory card. (To display the **Safely Remove Hardware** icon, select **Show Hidden Icons** in the taskbar.)

3. Gently press in on the digital memory card ❶ to unlock it.

4. Slide the digital memory card ❷ from the slot.

8

Memory Modules

What Is a Memory Module?

⚠ **WARNING:** The memory module compartment, hard drive bay, and battery bay are the only user-accessible internal compartments on the notebook. All other areas that require a tool to open should be opened only by a service partner.

⚠ **WARNING:** Failure to unplug the power cord and remove all battery packs before installing a memory module can damage the equipment and expose you to the risk of electric shock.

⚠ **CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object. For more information, refer to the *Regulatory and Safety Notices* guide.

The notebook has 2 memory module compartments. The primary memory module compartment is located under the keyboard. The expansion memory module compartment is located on the bottom of the notebook.

The memory capacity of the notebook can be upgraded by adding a memory module to the expansion slot or by upgrading the existing memory module in the primary memory module slot.
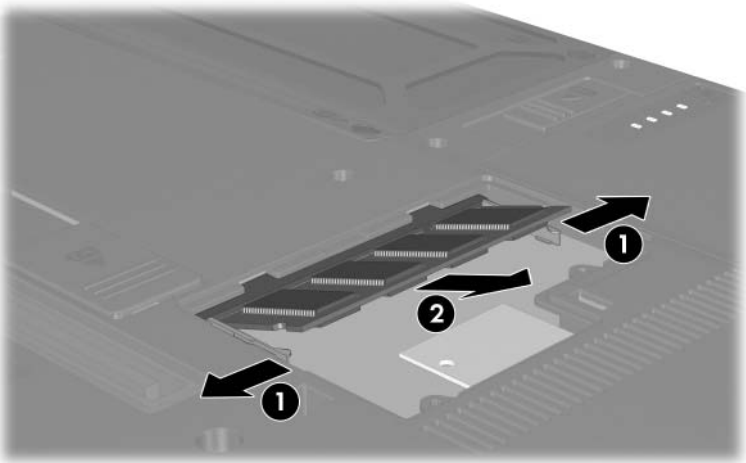
Expansion Memory Module Slot

To add or upgrade a memory module in the expansion memory module slot:

1. Shut down the notebook. (If you are not sure whether the notebook is off or in hibernation, turn the notebook on by sliding the power switch toward the front of the notebook. Then shut down the notebook through the operating system.)

2. Disconnect all external devices connected to the notebook.

3. Disconnect the power cord.

4. Turn the notebook upside down.

5. Remove any battery packs from the notebook.

6. Loosen the memory module cover screws ❶.

7. Lift the memory module cover ❷ away from the notebook.
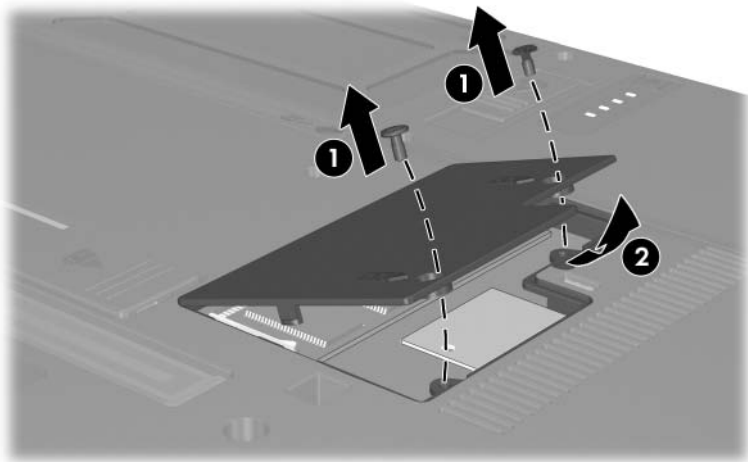
8. If there is a memory module in the memory module slot, remove it:

   a. Pull away the retention clips ❶ on each side of the module. (The module tilts upward.)

   b. Grasp the edges of the module ❷ and gently pull the module out of the memory module slot. To protect a memory module after removal, place it in an electrostatic-safe container.

9. Insert the new memory module:

   a. Align the keyed (notched) edge ❶ of the module with the tabbed area in the memory module slot.

   b. With the module at a 45-degree angle from the surface of the memory module compartment, press the module ❷ into the memory module slot until it is seated.

   c. Press the module downward ❸ until the retention clips snap into place.
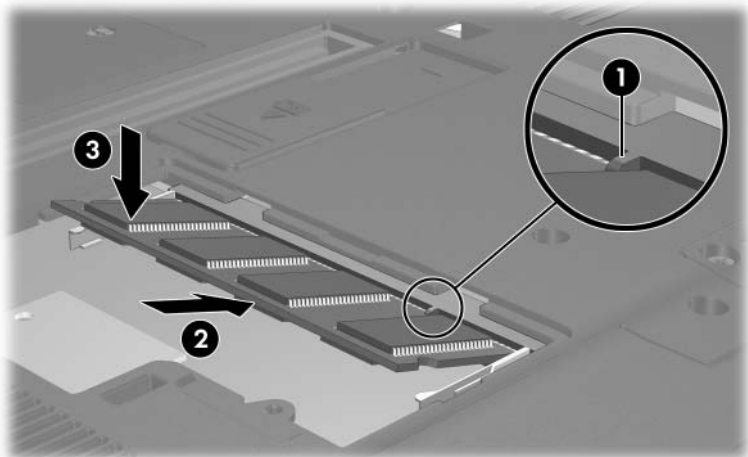
10. Replace the memory module cover ❶ and the memory module cover screws ❷.
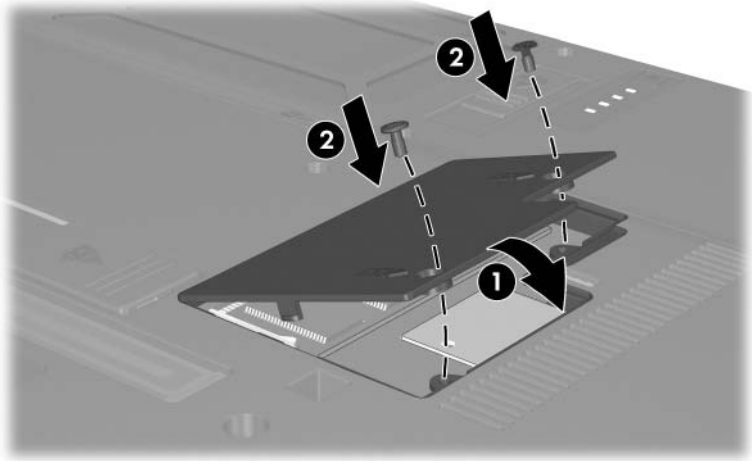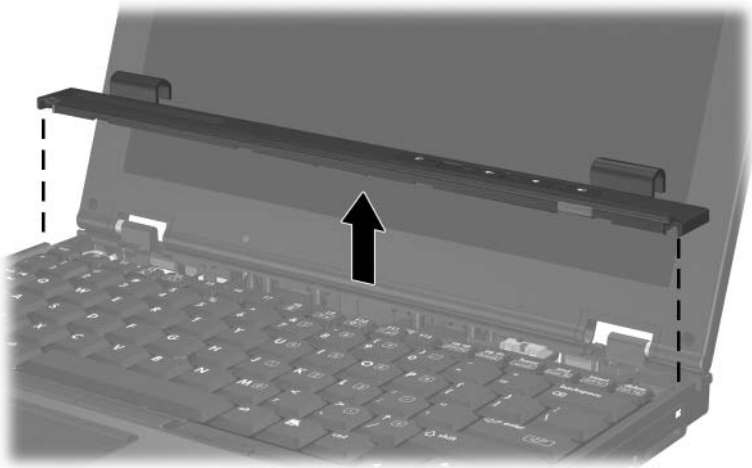
Primary Memory Module Slot

To replace the existing memory module in the primary memory module slot:

1. Shut down the notebook. (If you are not sure whether the notebook is off or in hibernation, turn on the notebook by sliding the power switch toward the front of the notebook. Then shut down the notebook through the operating system.)

2. Disconnect all external devices connected to the notebook.

3. Disconnect the power cord.

4. Turn the notebook upside down.

5. Remove any battery packs from the notebook.

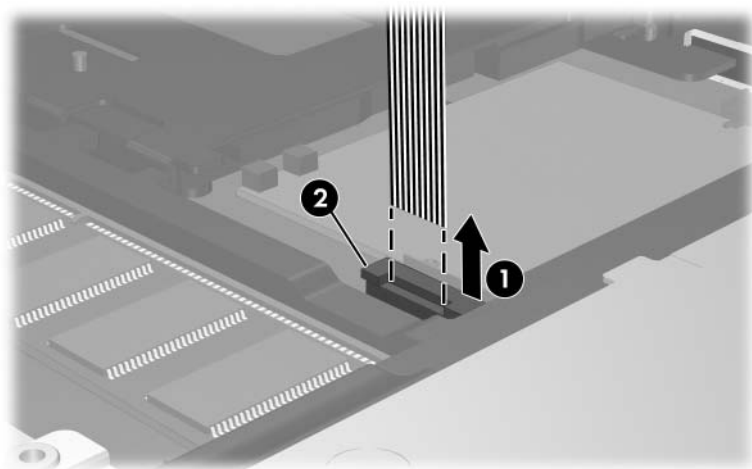6. Remove the 6 screws from the bottom of the notebook.
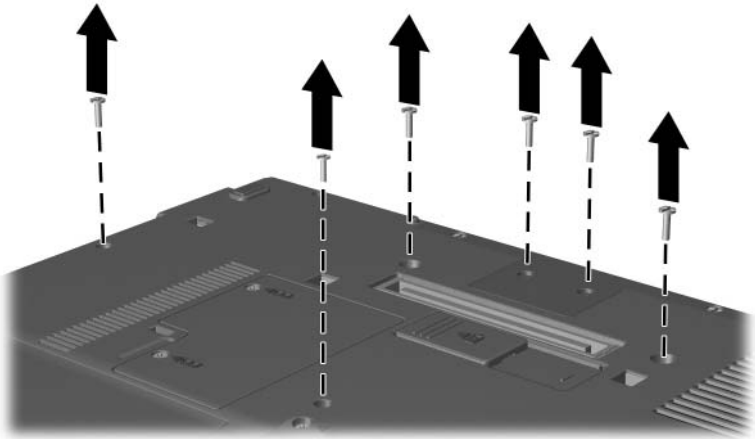
7. Turn the notebook display-side up and open it.

8. Remove the button cover from the notebook using the flat end of a screwdriver.

9. Lift the top edge of the keyboard and tilt the keyboard over until it rests on the palm rest of the notebook.
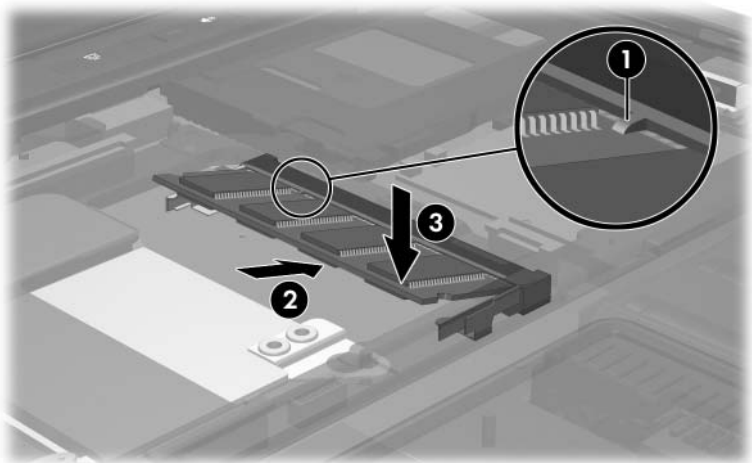
10. Remove the pointing stick cable ❶ from the pointing stick connector ❷.

11. To remove the memory module from the memory module slot:

    a. Pull the retention clips ❶ away from each side of the module. (The module tilts upward when released.)

    b. Lift the edge of the memory module ❷, and gently remove it from the slot. (To protect a memory module after it has been removed, place it in a static-safe container.)
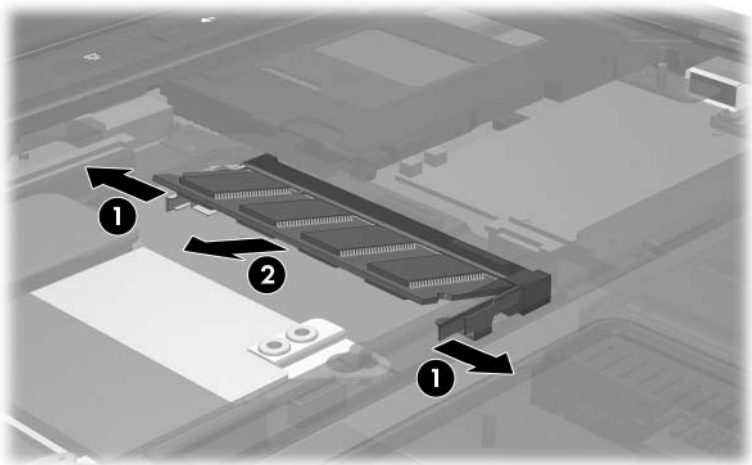
12. To insert a new memory module into the memory module slot:

   a. Align the keyed (notched) edge ❶ of the module with the keyed area in the expansion slot.

   b. Press the module ❷ into the slot from a 45-degree angle until it is seated.

   c. Press the module downward ❸ until the retention clips snap into place.

13. Replace the pointing stick cable ❶ in the pointing stick connector ❷.
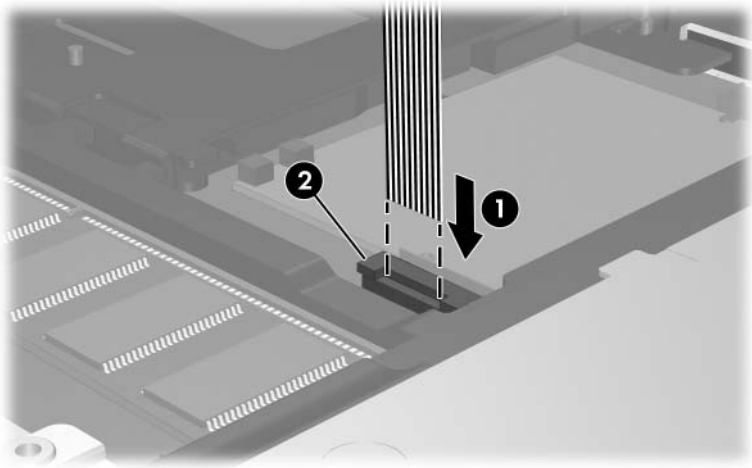
14. Replace the keyboard.

15. Replace the button cover on the notebook.

16. Replace the screws located on the bottom of the notebook.

17. Replace the battery pack(s).

18. Reconnect external power and external devices.

19. Restart the notebook.

Hibernation File

When random access memory (RAM) increases, the operating system increases the hard drive space reserved for the hibernation file.

If you experience problems with hibernation after increasing RAM, verify that your hard drive has enough free space to accommodate a larger hibernation file.

■ To display the amount of RAM in the system:

❏ Select **Start > Control Panel > Performance and Maintenance > System > General** tab.

– or –

❏ Press **fn+esc.**

■ To display the amount of free space on your hard drive, select **Start > My Computer.** Then select your hard drive. Information about the space on the drive is displayed in the **Details** box at the bottom of the window.

■ To display the amount of space required by the hibernation file, select **Start > Control Panel > Performance and Maintenance > Power Options > Hibernate** tab.

9

USB Devices

What Is USB?

Universal Serial Bus (USB) is a hardware interface that can be used to connect external devices such as a USB keyboard, mouse, drive, printer, scanner, or hub to the notebook. The notebook has 3 standard USB connectors that support USB-2.0 and USB-1.1 devices.

A USB device functions in the same way as a comparable non-USB device, with one exception. By default, USB devices do not function unless an operating system that supports USB is installed in the notebook.

Some USB devices may require additional support software, which is usually included with the device. For more information and software installation instructions, refer to the documentation included with the device.

USB Device Connection
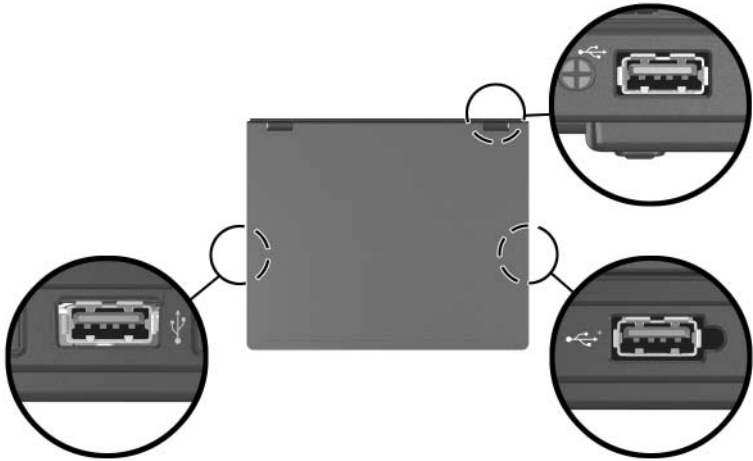
USB hubs can be connected to a USB connector on the notebook, or on an optional docking device, or to other USB devices. Hubs support varying numbers of USB devices and are used to increase the number of USB devices in the system. Powered hubs must be connected to external power. Unpowered hubs must be connected either to a USB connector on the notebook or to a port on a powered hub.

Operating System and Software

A USB device functions in the same way as a comparable non-USB device, with one exception. By default, USB devices do not function unless an operating system that supports USB is installed in the notebook.

Some USB devices may require additional support software, which is usually included with the device. For more information and software installation instructions, refer to the documentation included with the device.

USB Legacy Support

You must enable USB legacy support to

■ Use a USB keyboard, mouse, or hub connected to a USB connector on the notebook during startup or in a non-Windows application or utility.

■ Start from an optional external MultiBay.

To enable USB legacy support:

1. Turn on or restart the notebook.

2. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

3. Select **Advanced** > **Device Options.**

4. Select **Enable USB legacy support.**

5. To save your preference and exit Computer Setup, select **File > Save changes and exit,** and then follow the instructions on the screen.

10

Modem and Networking

Internal Modem

Modem Cable

⚠ **WARNING:** Connecting the notebook to a digital line can permanently damage the modem. Immediately disconnect your modem cable if you accidentally connect it to a digital line.

A modem cable, which has a 6-pin RJ-11 connector at each end, must be connected to an analog telephone line. In some countries, a country-specific modem adapter is required. Jacks for digital PBX systems may resemble analog telephone jacks, but they are not compatible with the modem.
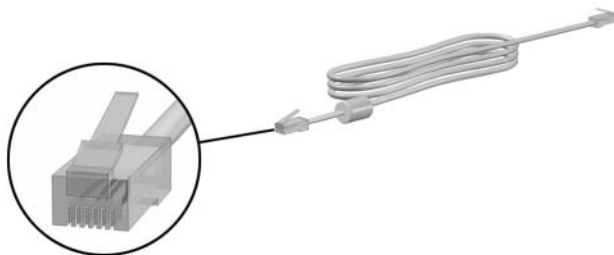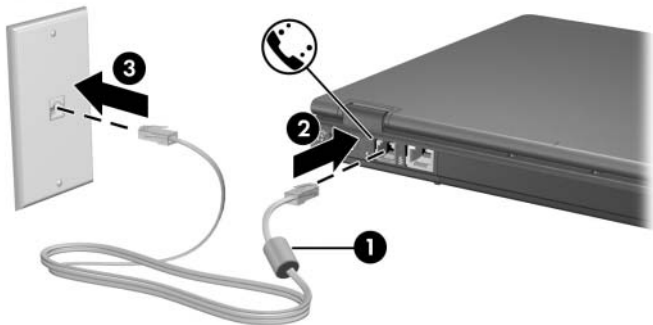
Using the Modem Cable

To connect a modem cable:

⚠ **WARNING:** To avoid the risk of electrical shock, fire, or damage to the equipment, do not plug a modem cable into a network jack.

1. Turn the notebook display-side up on a flat surface near a telephone wall jack.

2. If the modem cable has a noise suppression circuitry ❶, which prevents interference with TV and radio reception, orient the circuitry end of the cable toward the notebook.

3. Plug the modem cable into the RJ-11 (modem) jack ❷ on the notebook.

4. Plug the other end of the modem cable into an RJ-11 telephone jack ❸.

For more information about using the modem or about using AT commands and dial modifiers, refer to the "Modem Country Selection" or the *Modem Command Guidelines (Advanced Users Only)* provided in English.

Using a Country-Specific Modem Cable Adapter

Telephone jacks vary by country. If you are connecting the modem to a telephone line in a country where RJ-11 telephone jacks are not standard, you must obtain a country-specific modem adapter. Refer to the "Modem Country Selection" section for more details about using your notebook internationally.

To connect the modem to an analog telephone line that does not have an RJ-11 telephone jack:

⚠ **WARNING:** To avoid the risk of electrical shock, fire, or damage to the equipment, do not plug a modem cable into the network jack.

1. Turn the notebook display-side up on a flat surface near a telephone wall jack.

2. If the modem cable has a noise suppression circuitry ❶, which prevents interference with TV and radio reception, orient the circuitry end of the cable toward the notebook.

3. Plug the modem cable into the RJ-11 (modem) jack ❷ on the notebook.

4. Plug the modem cable ❸ into the country-specific modem cable adapter.

5. Plug the country-specific modem cable adapter ❹ into the telephone jack.
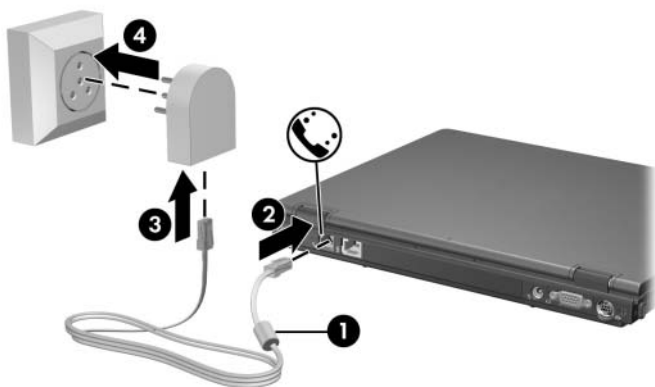
Modem Country Selection

Viewing the Current Country Selection

To see the current country setting for your modem:

1. Select **Start > Control Panel > Date, Time, Language, and Regional Options > Regional & Language Options.**

2. Under Location, view your present location.

Adding New Locations When Traveling

The internal modem is configured to meet only the operating standards in the country where you purchased the notebook. When traveling internationally, you can add new location configurations that comply with standards in other countries.

$\triangle$ **CAUTION:** Do not delete your current modem country settings. To enable modem use in other countries while preserving your home country configuration, add a new configuration for each location in which you will use the modem.

The drop-down lists described below may include countries not supported by the modem. Unless you select a supported country, the country selection will default to USA or UK.

△ **CAUTION:** Selecting a country other than the one in which the computer is located may cause your modem to be configured in a way that violates the telecommunications regulations/laws of that country. In addition, your modem may not function properly if the correct country selection is not made.

To add a new country location:

1. Select **Start > Control Panel > Network and Internet Connections > Phone and Modem Options > Dialing Rules** tab.

   ✎ The first time you select the **Dialing Rules** tab, you will be prompted to enter your area code information in the **Local Information** window.

2. Select the **New** button and assign a name (home, work, etc.).

3. Select the Country/Region from the drop-down list.

   ✎ The drop-down list may include countries not supported by the modem. Unless you select a supported country, the country selection will default to USA or UK.

4. Select **OK > OK.**

Solving Travel Connection Problems

If you experience connection problems while using the modem outside your home country, the following suggestions may help:

■ **Check the telephone line type**

The modem requires an analog, not a digital, telephone line. A line described as a PBX line is usually a digital line. A telephone line described as a data line, fax machine line, modem line, or standard telephone line is probably an analog line.

■ **Check for tone or pulse dialing**

Dial a few digits on the telephone and listen for clicks (pulses) or tones. Then select:

1. Select **Start > Control Panel > Network and Internet Connections > Phone and Modem Options > Dialing Rules** tab.

   ✎ The first time you select the **Dialing Rules** tab, you will be prompted to enter your area code information in the **Local Information** window.

2. Select your location, and then select **Edit.**

3. Select either **Tone** or **Pulse** depending on what you heard on the line.

4. Select **OK > OK.**

■ **Check the telephone number you are dialing and the response of the remote modem**

Dial the telephone number on the telephone, wait for the remote modem to answer, and then hang up.

■ **Set the modem to ignore dial tones**

If the modem receives a dial tone it does not recognize, it will not dial and will display a "No Dial Tone" error message. Use the following procedures to set the modem to ignore all dial tones before dialing:

1. Select **Start > Control Panel > Network and Internet Connections > Phone and Modem Options > Modems** tab.

2. Select your modem > **Properties > Modem** tab.

3. Clear the **Wait for dial tone before dialing** check box.

4. If you continue to receive the No Dial Tone error message after clearing the check box:

   a. Select **Start > Control Panel > Network and Internet Connections > Phone and Modem Options > Dialing Rules** tab.

   ✎ The first time you select the **Dialing Rules** tab, you will be prompted to enter your area code information in the **Local Information** window.

   b. Select your location, and then select **Edit.**

   c. Select your country/region from the drop-down list.

   d. Select **Apply > OK.**

   e. Select the **Modems** tab.

   f. Select your modem, and then select **Properties.**

   g. Clear the **Wait for dial tone before dialing** check box.
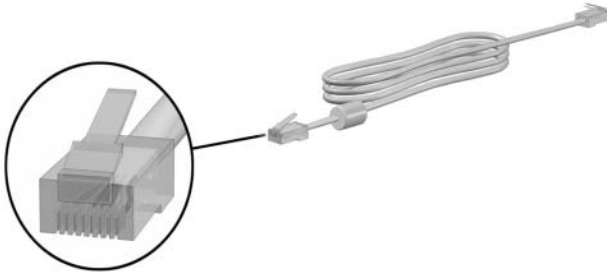
Preinstalled Communication Software

To use preinstalled modem software for terminal emulation and data transfer, follow these steps:

1. Select **Start > All Programs > Accessories > Communications.**

2. Select the appropriate fax or terminal emulation program or Internet connection wizard.

Network

A network cable has an 8-pin RJ-45 connector at each end.

To connect the network cable:

1. Turn the notebook display-side up on a flat surface near a network jack.

2. If the network cable has a noise suppression circuitry ❶, which prevents interference with TV and radio reception, orient the circuitry end of the cable toward the notebook.

3. Plug the network cable into the RJ-45 (network) jack ❷ on the notebook.

4. Plug the other end of the cable into a network jack ❸.
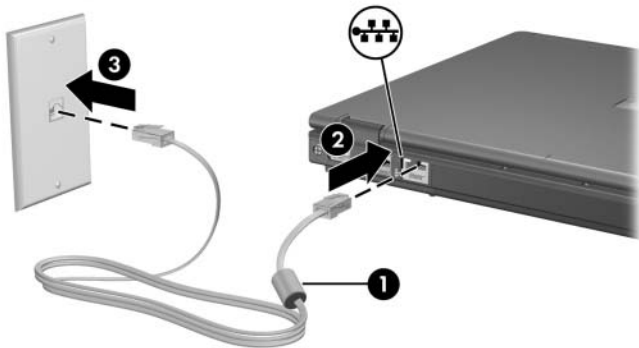
✎ Your notebook is equipped with LAN Power Save mode, which enables you to conserve battery power. LAN Power Save mode turns off the LAN device when the notebook is not connected to external power and the network cable is disconnected. For more information, refer to "Using LAN Power Save Mode" in Chapter 2, "Power."

11

Wireless (Select Models Only)

If your notebook is equipped with an integrated wireless device such as an 802.11 or a Bluetooth wireless device, you have a wireless notebook.

■ An 802.11 wireless notebook can connect to wireless networks in corporate offices, your home, and public places. Wireless networks include wireless local area networks (WLANs) or "hotspots." Hotspots are wireless access points available in public places such as airports, restaurants, coffee shops, hotels, and universities.

■ A Bluetooth wireless notebook can connect to other Bluetooth wireless-enabled devices using a wireless personal area network (PAN).

Your notebook has a button that can be used to enable and disable 802.11 and Bluetooth wireless devices and an associated light to indicate the state of the wireless devices. The following illustration shows the wireless button ❶ and light ❷.

In addition to the wireless button and light, your notebook has software controls that enable you to turn on, turn off, enable, and disable your wireless devices. The following table explains the software controls.

Wireless Control	Description
Wireless Assistant	Is a software utility that enables you to turn on and off 802.11 and Bluetooth wireless devices individually. For more information on using Wireless Assistant, refer to the "Device Power States" section in this chapter.
Computer Setup controls	Enable and disable 802.11 and Bluetooth wireless devices in Computer Setup. For more information about using Computer Setup to control 802.11 and Bluetooth wireless devices, refer to Chapter 13, "Computer Setup."

Wireless Local Area Network Device (Select Models Only)

With an 802.11 wireless device, you can access a wireless local area network (WLAN), which is composed of other computers and accessories linked by a wireless router or a wireless access point.

■ A large scale WLAN, such as a corporate WLAN or public WLAN hotspot, typically use wireless access points that can handle a large number of computers and accessories and can separate critical network functions.

■ A home or small office WLAN typically uses a wireless router, which enables several wireless and wired computers to share an Internet connection, a printer, and files without additional pieces of hardware or software. *Wireless access point* and *wireless router* are often used interchangeably.

Notebooks with 802.11 WLAN devices may support one or more of 3 IEEE physical layer standards:

■ 802.11a

■ 802.11b

■ 802.11g

There are 3 popular implementations of WLAN adapters:

■ 802.11b only

■ 802.11b/g

■ 802.11a/b/g

802.11b, the first popular WLAN standard, supports data rates of up to 11 Mbps and operates at a frequency of 2.4 GHz. 802.11g, which came later, also operates at 2.4 GHz but supports data rates of up to 54 Mbps. An 802.11g WLAN device is backward compatible with 802.11b devices, so they can operate on the same network. 802.11a supports data rates of up to 54 Mbps but operates at a frequency of 5 GHz. 802.11a is not compatible with 802.11b and 802.11g. For information on identifying the type of device in your notebook, refer to the "Identifying a WLAN Device" section in this chapter.

Connecting Your Wireless Notebook to a Corporate WLAN

Contact your network administrator or IT department for information on connecting your notebook to your corporate WLAN.

# Connecting Your Wireless Notebook to a Public WLAN

Contact your ISP or search the Web for a list of public WLANs near you. Web sites that list public WLANs include Cisco Hotspot Locator, Hotspotlist, and Geektools.

When you are within range of a public WLAN, a Wireless Network Connection interactive message is displayed at the bottom of the screen. Check with each public WLAN location for cost and connection requirements.

Setting Up a WLAN in Your Home

To set up a WLAN and connect to the Internet in your home, you need the following equipment. The illustration below shows an example of a completed wireless network installation that is connected to the Internet. This wireless network includes

- An optional broadband modem (either DSL or cable) and high-speed Internet service purchased from an Internet service provider (ISP) ❶.
- An optional wireless router (purchased separately) ❷.
- Your wireless notebook ❸.
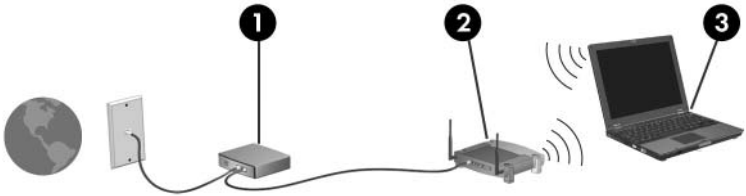
As this network grows, additional wireless and wired computers can be connected to the network to access the Internet.

✎ If you need technical assistance to install your WLAN, contact the router manufacturer or your ISP.

Using a WLAN Connection

To use a WLAN connection:

■ Verify that all drivers required by the 802.11 wireless device are installed and that the 802.11 wireless device is correctly configured.

✎ If you are using an integrated 802.11 wireless device, all required drivers are installed and the adapter is preconfigured and ready for use.

■ If you are using an integrated 802.11 wireless device, verify that the 802.11 wireless device is turned on. When the 802.11 wireless device is turned on, the wireless light is turned on. If the wireless light is off, turn on the 802.11 wireless device. Refer to the "Device Power States" section.

■ For your home WLAN, verify that your router is correctly configured. For instructions, refer to your router documentation.

✎ Functional range for subsequent WLAN connections vary, depending on your notebook WLAN implementation, router manufacturer, and interference from varying types of walls and other electronic devices.

For more information about using a WLAN connection:

■ Refer to information from your ISP and the documentation included with your wireless router and other WLAN equipment.

■ Access the information and Web site links provided at **Start > Help and Support.**

■ Refer to the documentation included with your notebook. The *Troubleshooting* guide contains a section about wireless LAN device problems and resolutions.

Using Wireless Security Features

When you set up your own WLAN or access an existing WLAN, always ensure that security features are protecting the WLAN. If you do not enable security on your WLAN, an unauthorized wireless user can access your notebook data and use your Internet connection without your knowledge.

The most common security levels are Wi-Fi Protected Access (WPA)-Personal and Wired Equivalent Privacy (WEP). In addition to enabling WPA-Personal or WEP security encryption on the router, you may want to use one or more of the following security measures:

■ Change the default network name (SSID) and password.

■ Use a firewall.

■ Set security on your Web browser.

■ Enable MAC address filtering on the router.

For more information about WLAN security, refer to the HP Web site at http://www.hp.com/go/wireless for details.

Installing Wireless Software (Optional)

Microsoft® Windows® XP uses its Zero Client Configuration feature to support WLAN configuration. HP provides a separate WLAN configuration utility that must be installed if you plan to use Cisco Compatible Extensions. Cisco Compatible Extensions enable wireless devices to use Cicso-based WLANs.

Identifying a WLAN Device

To install HP WLAN software for an integrated 802.11 wireless device, you need to know the name of the integrated 802.11 wireless device on your notebook. To identify an integrated 802.11 wireless device:

1. Display the names of all the 802.11 wireless devices on your notebook:

    a. Select **Start > My Computer.**

    b. Right-click in the **My Computer** window.

    c. Select **Properties > Hardware** tab > **Device Manager > Network Adapters.**

2. Identify the 802.11 wireless device from the list that is displayed:

    ❏ The listing for an 802.11 wireless device includes the term *wireless LAN, WLAN,* or *802.11.*

    ❏ If no 802.11 wireless device is listed, either your notebook does not have an integrated 802.11 wireless device, or the driver for the 802.11 wireless device is not properly installed.

Accessing WLAN Software and Documentation

Your WLAN software is preloaded on your notebook and is available in the Software Setup utility.

To install the WLAN software:

» Select **Start > All Programs > Software Setup,** and then follow the instructions on the screen. (When you are prompted to select the software you want to install, select or clear the corresponding check boxes.)

The WLAN software is also available as a SoftPaq at the HP Web site. To access, download, and install the SoftPaq, use either of the following procedures:

■ Select **Start > Help and Support.**

– or –

■ Visit the HP Web site at http://www.hp.com/support:

   a. Choose your language and region.

   b. Select **Download Drivers and Software**.

   c. Enter your computer model information, and then follow the instructions provided at the Web site.

   ✎ WLAN software is provided in the Network category. To access model information about your computer, refer to the serial number label. The serial number label is on the bottom of the notebook.

To access documentation for your WLAN software:

1. Install the WLAN software as instructed earlier in this chapter.

2. Open the utility.

3. Select **Help** on the menu bar.

Troubleshooting Devices

For more troubleshooting information, visit the HP Web site at http://www.hp.com/go/wireless or refer to the documentation included with your notebook.

Bluetooth Wireless Device (Select Models Only)

A Bluetooth wireless device provides short-range wireless communications that replace the physical cable connections that traditionally link electronic devices such as

■ Network access points.

■ Computers (desktop, notebook, PDA).

■ Phones (cellular, cordless, smart phone).

■ Imaging devices (printer, camera).

■ Audio devices (headset, speakers).

The devices are represented in the Bluetooth for Windows software by graphical icons that resemble their physical features, which makes them easily recognizable and distinguishes them from other classes of devices.

The Bluetooth for Windows software provides the following functions:

■ Personal Information Management (PIM) item transfer—Sends and receives information files such as business cards, calendar items, notes, and message items to and from another Bluetooth computer or device.

■ PIM synchronization—Synchronizes PIM data between a computer, PDA, or cell phone using Bluetooth.

■ File Transfer—Sends and receives files to and from another Bluetooth computer.

■ Network access (Personal Area Networking Profile)—Enables 2 or more Bluetooth devices to form an ad-hoc (peer-to-peer) network. Provides a mechanism that enables a Bluetooth device to access a remote network through a network access point. The network access points can be traditional LAN data access points or group ad-hoc networks that represent a set of devices that are attached only to one another.

■ Dial-up networking—Connects Bluetooth devices to the Internet.

■ Bluetooth serial port—Transfers data over the Bluetooth link using a virtual COM port.

■ Hands-Free—Enables a vehicle-embedded, hands-free unit or a notebook serving as a hands-free unit to establish a wireless connection to a cellular phone and to act as the Bluetooth cellular phone audio input and output mechanism.

■ Basic imaging—Provides a wireless connection between a Bluetooth-enabled camera and other Bluetooth devices. The camera can be controlled remotely by a notebook, and images can be transferred from a camera to be stored on a computer or to be printed.

■ Human interface device—Provides a wireless connection to other Bluetooth devices, such as keyboards, pointing devices, gaming devices, and remote monitoring devices.

■ Fax—Provides a Bluetooth connection that enables a notebook to send or receive a fax message using a Bluetooth cellular phone or modem.

■ Headset—Provides a wireless connection between a headset and a notebook or cellular phone. The headset acts as the device's audio input and output mechanism and increases mobility.

For more information about using Bluetooth with your notebook, refer to the *Bluetooth Getting Started* guide.

Device Power States

The wireless button ❶ enables and disables 802.11 wireless devices and Bluetooth devices in conjunction with Wireless Assistant. By default, the 802.11 Bluetooth or wireless device and wireless light ❷ are turned on when you turn on the notebook.

✎ Turning on an 802.11 wireless device does not automatically create a WLAN or connect you to a WLAN. For information on setting up a WLAN refer to the "Wireless Local Area Network Device (Select Models Only)" section in this chapter.

The wireless and Bluetooth 802.11 devices have 2 power states:

■ Enabled

■ Disabled

You can enable and disable a wireless device in Computer Setup. For more information about using Computer Setup to control an 802.11 or Bluetooth wireless device, refer to Chapter 13, "Computer Setup." You can also enable and disable a wireless device with the wireless button.

When a wireless device is enabled in Computer Setup and with the wireless button, you can use Wireless Assistant to turn on and off the devices individually. When the wireless devices are disabled, you must enable them before you can turn them on or off with Wireless Assistant.

To view the state of your wireless devices, place the cursor over the Wireless Assistant icon in the notification area, or open Wireless Assistant by double-clicking the icon in the notification area. Wireless Assistant displays the status of the devices as on, off, or disabled. Wireless Assistant also displays the status of the devices in Computer Setup as enabled or disabled.

For more information about Wireless Assistant:

1. Open Wireless Assistant by double-clicking the icon in the notification area.

2. Select the Help button.

✎ You cannot use the wireless button or Wireless Assistant to control the wireless devices if they are disabled in Computer Setup.

Turning On the Devices

If	And	Then
■ Wireless Assistant shows that both WLAN and Bluetooth are off ■ Wireless light is off	You want to turn on either or both devices	1. Right-click the **Wireless Assistant** icon in the notification area. 2. Select the device or devices you want to turn on. ✎ If the wireless devices are turned off, pressing the wireless button disables both devices. The button does not turn on the devices.
■ Wireless Assistant shows that both WLAN and Bluetooth are disabled* ■ Wireless light is off	You want to turn on either or both devices	1. Press the wireless button. (The devices return to their previous on or off state.) 2. If the wireless devices are turned off, right-click the **Wireless Assistant** icon in the notification area. 3. Select the device or devices you want to turn on.
■ Wireless Assistant shows that one device is on and the other device is off ■ Wireless light is on	You want to turn on either or both devices	1. Right-click the **Wireless Assistant** icon in the notification area. 2. Select the device or devices you want to turn on.

*If the wireless devices are not both on when you disable the devices, pressing the wireless button again returns the devices to their previous on or off state. Pressing the button does not turn on both devices.

✎ If you want your wireless devices to be turned on when you turn on your notebook, you must turn them on before you shut down or restart.

Turning Off and Disabling the Devices

If	And	Then
■ Wireless Assistant shows that both WLAN and Bluetooth are on ■ Wireless light is on	You want to disable both devices	Press the wireless button.
	You want to turn off either or both devices	1. Right-click the **Wireless Assistant** icon in the notification area. 2. Select the device or devices you want to turn off.
■ Wireless Assistant shows that both WLAN and Bluetooth are off ■ Wireless light is off	You want to disable both devices	Press the wireless button.
■ Wireless Assistant shows that one device is on and the other device is off* ■ Wireless light is on	You want to disable both devices	Press the wireless button.
	You want to turn off both devices.	1. Right-click the **Wireless Assistant** icon in the notification area. 2. Select the device or devices you want to turn off.

*If the wireless devices are not both on when you disable the devices, pressing the wireless button again returns the devices to their previous on or off state. Pressing the button does not turn on both devices.

Infrared Communications

The notebook is IrDA compliant—4 megabits per second (Mbps) standard—and can communicate with another infrared-equipped device that is also IrDA compliant.

The infrared port supports both low-speed connections of up to 115 kilobits per second (Kbps) and high-speed connections of up to 4 Mbps. Infrared performance may vary depending on the performance of infrared peripherals, distance between infrared devices, and applications used.

Infrared signals are sent through an invisible beam of infrared light and require an unobstructed line-of-sight path.
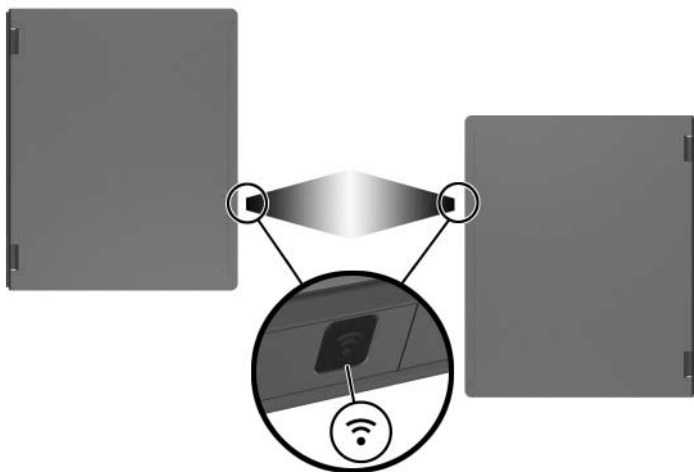
Setting Up an Infrared Transmission

For information about using infrared software, refer to your operating system Help file.

To set up infrared devices for optimal transmission:

■ Prepare the infrared ports on both devices for transmission.

■ Position the devices so that their infrared ports face one another at a distance no greater than 1 meter (3.3 feet).

■ Position the ports so that they face one another directly. Because the maximum capture angle is 30 degrees, the ports must be aligned no more than 15 degrees off center.

■ Shield the ports from direct sunlight, flashing incandescent light, and energy-saving fluorescent light.

■ Be sure that no signals from remote control or other wireless devices, such as headphones or audio devices, aim at a port.

■ During the transmission, do not move either device and do not allow objects or movement to disrupt the beam.

Using Standby with Infrared

Standby is not compatible with infrared transmission. If the notebook is in standby, an infrared transmission cannot be initiated. If standby is initiated during an infrared transmission, the transmission stops. To resume from standby, slide the power switch toward the front of the notebook. The transmission resumes when the notebook resumes from standby. However, any program that was using the infrared transmission when standby was initiated may not continue from the point at which it was stopped. For example, if a program was printing when standby was initiated, the program resumes transmission after the notebook resumes, but the print job may not resume.

Mobile Printing (Select Models Only)

Mobile Printing for notebooks enables you to print to any PostScript-enabled HP network printer, even if the notebook does not have the needed printer driver.

To print using Mobile Printing:

1. Select **File > Print** from any application.

2. Select **Mobile Printing** from the list of printers.

3. Select **Print**.

4. Enter the printer's IP address or network path.

5. Select **Print.**

For more information on downloading and using Mobile Printing, visit the HP Web site at http://www.hp.com/go/mobileprinting.

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Security

Security Features

✎ Security solutions are designed to act as deterrents. These deterrents may not prevent a product from being mishandled or stolen.

In addition to the Windows operating system security measures, the notebook provides the following security features, most of which can be configured in Computer Setup. For more information, refer to Chapter 13, "Computer Setup."

To Protect Against	Use This Security Feature
Unauthorized use of the notebook	■ Power-on password ■ HP ProtectTools Security Manager Refer to the "HP ProtectTools Security Manager (Select Models Only)" section in this chapter for additional information.
Unauthorized access to the Computer Setup utility (**f10**)	HP administrator password
Unauthorized access to the contents of a hard drive	DriveLock
Unauthorized access to a Windows user account	■ Optional smart cards An enabled smart card can store both the Windows user password and the Windows administrator password; therefore, both the smart card and the smart card PIN are required to access the account. ■ Credential Manager for ProtectTools Refer to the "Credential Manager for ProtectTools" section in this chapter for more information. ✎ This security feature is supported by only certain smart card readers.
Unauthorized access of data	■ Windows Firewall software ■ HP ProtectTools Security Manager Refer to the "HP ProtectTools Security Manager (Select Models Only)" section in this chapter for additional information.
Unauthorized access to the BIOS settings and other system identification information	HP administrator password, which protects the system information in Computer Setup.
Unauthorized removal of the notebook	Security cable slot (used with an optional security cable) For more information on the security cable slot, refer to the "Optional Security Cable" section in this chapter.

Security Preferences in Computer Setup

Most security preferences are set in Computer Setup. Because Computer Setup is a non-Windows utility, it does not support the pointing devices on your notebook. When using Computer Setup, you must use the keys on your notebook to navigate and make selections.

For more details, refer to Chapter 13, "Computer Setup."

Passwords

⚠ **CAUTION:** If you forget both the DriveLock user password and the DriveLock master password, the hard drive is permanently locked and can no longer be used.

Most security features use passwords. Whenever you set a password, write down the password and store it in a secure location away from the notebook.

■ If you forget your power-on password, you cannot start up the notebook or restore from hibernation. Contact Customer Care or an authorized service partner to have the notebook reset.

■ If you forget your HP administrator password, you will not be able to access Computer Setup.

■ If you forget the DriveLock user password but know the DriveLock master password, you can remove DriveLock protection from the drive. For instructions, refer to the "DriveLock" section in this chapter.

HP and Windows Passwords

HP security features and Windows operating system security features work independently from one another. For example, a device disabled in Computer Setup cannot be enabled in Windows.

HP passwords and Windows passwords are also independent of one another. The following table lists the different passwords used by HP and Windows and describes their functions.

HP Passwords*	Function
Administrator password	Used to log on to the notebook as the Windows administrator after Windows has been configured to prompt for a password at startup.
DriveLock master password	Used by the HP administrator to access drives protected by DriveLock and to remove DriveLock protection from the drive.
DriveLock user password	Used by the day-to-day user to access drives protected by DriveLock at startup.
HP administrator password	Used to access Computer Setup.
Power-on password	Used to access the notebook during startup and when you restart the notebook.

(Continued)

HP Passwords*	Function
Smart card PIN	Used when using a smart card to authenticate. Refer to the "Smart Card Security for ProtectTools" section in this chapter for more information.
	Power-on and HP administrator passwords can be stored on smart cards if an optional smart card reader supports this functionality.
User password	Used to log on to the notebook as a user after Windows has been configured to prompt for a password at startup.

*HP passwords must be enabled in Computer Setup. For more information, refer to Chapter 13, "Computer Setup."

Windows Passwords	Function
Administrator password	Used to log on to the notebook as the Windows administrator after Windows has been configured to prompt for a password at startup.
User password	Used to log on to the notebook as a user after Windows has been configured to prompt for a password at startup.

HP and Windows Password Guidelines

HP and Windows passwords are not interchangeable. You must use an HP password at an HP password prompt and a Windows password at a Windows password prompt. For example:

■ If a power-on password is set, the power-on password (not a Windows password) must be entered when the notebook starts up or restores from hibernation.

■ If you set Windows to prompt for a password before resuming from standby, a Windows password (not a power-on password) must be entered to resume from standby.

The same word or series of letters or numbers used for an HP password can be used for another HP password or for a Windows password, with the following considerations:

■ HP passwords can be any combination of up to 32 letters and numbers and are not case sensitive.

■ An HP password must be set and entered with the same type of keys. For example, an HP password set with keyboard number keys will not be recognized if it is entered with embedded numeric keypad number keys. For information about the embedded numeric keypad, refer to the "Quick Launch Buttons" section in Chapter 3, "Pointing Devices and Keyboard."

HP Administrator Passwords

The HP administrator password protects the configuration settings and system identification information in Computer Setup. After it is set, this password must be entered to access Computer Setup. The HP administrator password

■ Is not interchangeable with a Windows administrator password, although both can use the same word or series of letters, or numbers.

■ Does not display as it is set, entered, changed, or deleted.

■ Must be set and entered with the same type of keys. For example, an HP administrator password set with keyboard number keys will not be recognized if you enter it with embedded numeric keypad number keys.

■ Can include any combination of up to 32 letters and numbers and is not case sensitive.

Setting HP Administrator Passwords

An HP administrator password is set, changed, or deleted in
Computer Setup. To manage the password:

1. Open Computer Setup by turning on or restarting the
   notebook. Press **f10** while the F10 = ROM Based Setup
   message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Security > Administrator
   Password,** and then press **enter.**

   ❏ To set an HP administrator password, type your password
   in the **New Password** and **Verify New Password** fields,
   and then press **f10.**

   ❏ To change an HP administrator password, type your
   current password in the **Old Password** field, type the new
   password in the **New Password** and **Verify New
   Password** fields, and then press **f10.**

   ❏ To delete an HP administrator password, type your current
   password in the **Old Password** field, and then press **f10.**

3. To save your preferences and exit Computer Setup, use the
   arrow keys to select **File > Save changes and exit.** Then
   follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take
effect when the notebook restarts.

Entering HP Administrator Passwords

At the Computer Setup prompt, type your administrator password (using the same kind of keys you used to set the password), and then press **enter.** After 3 unsuccessful attempts to enter the HP administrator password, you must restart the notebook and try again.

Power-On Passwords

A power-on password prevents unauthorized use of the notebook. After it is set, a power-on password must be entered each time the notebook is turned on or restarted. A power-on password

■ Does not display as it is set, entered, changed, or deleted.

■ Must be set and entered with the same type of keys. For example, a power-on password set with keyboard number keys will not be recognized if you enter it with keypad number keys.

■ Can include any combination of up to 32 letters and numbers and is not case sensitive.

Setting Power-On Passwords

A power-on password is set, changed, or deleted in Computer Setup. To manage the password:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Security > Power-On password,** and then press **enter.**

   ❏ To set a power-on password, type the password in the **New Password** and **Verify New Password** fields, and then press **f10.**

   ❏ To change a power-on password, type the current password in the **Old Password** field, type the new password in the **New Password** and **Verify New Password** fields, and then press **f10.**

   ❏ To delete a power-on password, type the current password in the **Old Password** field, and then press **f10.**

3. To save your preferences, use the arrow keys to select **File > Save changes and exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Entering Power-On Passwords

At the power-on password prompt, type your password, and then press **enter.** After 3 unsuccessful attempts to enter the password, you must restart the notebook and try again.

Requiring a Power-On Password at Restart

You can require that a power-on password be entered each time the notebook is restarted. Enable and disable this feature in Computer Setup.

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Security > Password options > Require password on restart.**

3. Toggle the field to enable or disable, and then press **enter.**

4. Save your preferences by using the arrow keys to select **File > Save Changes and Exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

DriveLock

⚠ **CAUTION:** If you forget both the DriveLock user password and the DriveLock master password, the hard drive is permanently locked and can no longer be used.

DriveLock prevents unauthorized access to the contents of a hard drive. After DriveLock protection is applied to a drive, a password must be entered to access the drive. The drive must be inserted into the notebook, not into an optional docking device (select models only) or external MultiBay, in order for it to be accessed by the DriveLock passwords.

DriveLock involves a user password and a master password:

■ A hard drive protected by DriveLock can be accessed with either the user password or the master password.

■ You can delete a user password or master password only by removing DriveLock protection from the drive. DriveLock protection can be removed from the drive only with the master password.

■ The owner of the user password should be the day-to-day user of the protected hard drive. The owner of the master password may be a system administrator or the day-to-day user.

■ A user password and a master password can be the same word.

✎ When you start the notebook from a hard drive protected with DriveLock, and your power-on password and DriveLock password are identical, you will be prompted to enter only a power-on password instead of both a power-on password and a DriveLock password.

Setting DriveLock Passwords

⚠️ **CAUTION:** If you forget both the DriveLock user password and the DriveLock master password, the hard drive is permanently locked and can no longer be used.

⚠️ **CAUTION:** To prevent system lockup and loss of information, shut down the notebook before removing the hard drive from the hard drive bay. Do not remove the hard drive while the notebook is on, in standby, or in hibernation.

To access the DriveLock settings in Computer Setup:

1. Shut down the notebook. If you are not sure whether the notebook is off or in hibernation, turn the notebook on by sliding the power switch toward the front of the notebook, and then shut down the notebook through the operating system.

2. Be sure that the hard drive is inserted into the notebook (not into an optional docking device or external MultiBay).

3. Open Computer Setup by turning on the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

4. Use the arrow keys to select **Security > DriveLock passwords.** Then press **enter.**

5. Select the location of the hard drive, and then press **f10.**

6. Toggle the **Protection** field to **Enable.**

7. Read the warning. To continue, press **f10.**

8. Type your user password in the **New Password** and **Verify New Password** fields, and then press **f10.**

9. Type your master password in the **New Password** and **Verify New Password** fields, and then press **f10.**

10. To confirm DriveLock protection on the drive you have selected, type DriveLock in the confirmation field, and then press **f10.**

11. To save your DriveLock settings, select **File > Save changes and exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Entering DriveLock Passwords

1. Be sure that the drive is inserted into the notebook (not into an optional docking device or external MultiBay).

2. When prompted for a DriveLock password, type your user or master password (using the same kind of keys you used to set the password), and then press **enter.**

3. After 2 incorrect attempts to enter the password, you must restart the notebook and try again.

Requiring a Drivelock Password at Restart

You can require that a DriveLock password be entered each time the notebook is restarted. Enable and disable this feature in Computer Setup:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Security > Password options > Require password on restart.**

3. Toggle the field to enable or disable, and then press **enter.**

4. Save your preferences by using the arrow keys to select **File > Save changes and exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Changing DriveLock Passwords

⚠ **CAUTION:** To prevent loss of work and damage to the notebook and the hard drive, shut down the notebook before inserting or removing a hard drive. (The hard drive is any hard drive used in the hard drive bay.)

To access the DriveLock settings in Computer Setup:

1. Shut down the notebook. If you are not sure whether the notebook is off or in hibernation, turn the notebook on by sliding the power switch toward the front of the notebook, and then shut down the notebook through the operating system.

2. Be sure that the hard drive is inserted into the notebook (not into an optional docking device or external MultiBay).

3. Open Computer Setup by turning on the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

4. Use the arrow keys to select **Security > DriveLock passwords,** and then press **enter.**

5. Use the arrow keys to select the location of the hard drive, and then press **f10.**

6. Use the arrow keys to select the field for the password you want to change. Type your current password in the **Old Password** field, and then type the new password in the **New Password** field and in the **Verify New Password** field. Then press **f10.**

7. To save your preferences, use arrow keys to select **File > Save changes and exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Removing DriveLock Protection

To access the DriveLock settings in Computer Setup:

1. Shut down the notebook. If you are not sure whether the notebook is off or in hibernation, turn the notebook on by sliding the power switch toward the front of the notebook, and then shut down the notebook through the operating system.

2. Be sure that the hard drive is inserted into the notebook (not into an optional docking device or external MultiBay).

3. Open Computer Setup by turning on the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

4. Use the arrow keys to select **Security > DriveLock passwords,** and then press **enter.**

5. Use the arrow keys to select the location of the hard drive, and then press **f10.**

6. Toggle the **Protection** field to Disable, and then press **f10.**

7. Type your master password in the **Old Password** field. Then press **f10.**

8. To save your preferences, use the arrow keys to select **File > Save changes and exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Device Security

From the Computer Setup Device Security menu, you can disable or partially disable most ports and drives.

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Select **Security > Device Security,** and then enter your preferences.

3. To confirm your preferences, press **f10.**

4. To save your preferences, select **File > Save changes and exit.** Then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

System Information

The System Information setting provides details about your notebook and battery pack. The following sections explain how to prevent other users from viewing system information and how to configure system information options in Computer Setup.

System Information options allow you to

■ Display or enter the notebook serial number, asset tag, and ownership tag.

■ Display a battery pack serial number.

✎ To prevent unauthorized access to this information, you must create an HP administrator password. For instructions, refer to the "Setting HP Administrator Passwords" section earlier in this chapter.

Setting System Information Options

1. To open Computer Setup, turn on or restart the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Access or set your preferences by following these directions:

   ❏ To view general system information, select **File > System Information.**

   ❏ To view or enter identification values for system components, select **Security > System IDs.**

3. To confirm the information or your preferences, press **f10.**

4. To save your information or preferences, use the arrow keys to select **File > Save Changes and Exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Firewall Software

When you use the notebook for e-mail, network, or Internet access, it is possible for unauthorized persons to obtain information about you, your notebook, and your data. To protect your privacy, it is recommended that you use firewall software.

The Windows operating system firewall is available on your notebook. To learn more about this firewall:

1. Select **Start > Control Panel > Network and Internet Connections > Windows Firewall.**

2. Select the **General** tab.

   ❏ To learn more about Windows Firewall, select the **What else should I know about Windows Firewall?** link.

   ❏ To disable Windows Firewall, select **Off (not recommended).**

   ❏ To reenable Windows Firewall, select **On (recommended).**

3. Select **OK.**

Under some circumstances a firewall can block access to Internet games, interfere with printer or file sharing on a network, or block authorized e-mail attachments. If you are using Windows Firewall and an application attempts an inbound connection to your notebook for the first time, a security alert will be displayed. The security alert allows you to configure the firewall permission for the application.

■ To allow the application to connect to your notebook, select **Unblock this program.** The application is added to the Exceptions list and will not be blocked by Windows Firewall.

■ To permanently block the application, select **Keep blocking this program.** Windows Firewall will block the application anytime the application tries to connect.

■ To temporarily block the application, select **Keep blocking this program, but ask me again later.** The next time the application attempts to connect to your notebook, you will receive the security alert.

To manually add an application to the Windows Firewall Exceptions list so that it will not be blocked by the firewall:

1. Select **Start > Control Panel > Network and Internet Connections > Windows Firewall.**

2. Select the **Exceptions** tab.

3. Select **Add Program** and enter the required information about the application.

4. Select **OK.** The application is added to the Exceptions list and will not be blocked by Windows Firewall.

If you are using an optional firewall and you want to allow a blocked application to connect:

■ Temporarily solve the problem by disabling the firewall, performing the task, and then reenabling the firewall.

■ Permanently resolve the problem by reconfiguring the firewall. Refer to the firewall documentation or contact the firewall manufacturer.

Critical Security Updates for Windows XP

A *Critical Security Updates for Windows XP* disc may have been included with your notebook to provide additional updates delivered after the computer was configured. Throughout the life of the computer, Microsoft will continue to update the operating system and make these updates available on their Web site.

To update your system using the *Critical Security Updates for Windows XP* disc:

1. Insert the disc into the drive. (The disc automatically runs the installation application.)

2. Follow the on-screen instructions to install all updates. (This may take a few minutes.)

3. Remove the disc.

$\triangle$ **CAUTION:** Because new computer viruses are being detected all the time, it is recommended that you install all critical updates as soon as you receive an alert from Microsoft. You should also run Windows Update on a monthly basis to install the latest recommended updates and driver updates from Microsoft and HP.

HP ProtectTools Security Manager (Select Models Only)

Your notebook comes with HP ProtectTools Security Manager preinstalled. This software is accessed through Microsoft Windows Control Panel. It provides security features that are designed to help protect against unauthorized access to the notebook, networks, and critical data. Add-on modules for HP ProtectTools Security Manager include the following:

■ Embedded Security for ProtectTools

■ Credential Manager for ProtectTools

■ BIOS Configuration for ProtectTools

■ Smart Card Security for ProtectTools

Depending on your notebook model, add-on modules may be preinstalled, preloaded, or downloaded from the HP Web site. Visit http://www.hp.com for more information.

Embedded Security for ProtectTools

✎ You must have the optional embedded security chip in your notebook in order to use Embedded Security for ProtectTools.

Embedded Security for ProtectTools has security features that protect against unauthorized access to user data or credentials, which include the following:

■ Administrative functions, such as ownership and management of the owner pass phrase.

■ User functions, such as user enrollment and management of user pass phrases.

■ Settings configuration, including setting up enhanced Microsoft EFS and Personal Secure Drive for protecting user data.

■ Management functions, such as backing up and restoring the key hierarchy.

■ Support for third-party applications (such as Microsoft Outlook and Internet Explorer) for protected digital certificate operations when using embedded security.

The optional embedded security chip enhances and enables other HP ProtectTools Security Manager security features. For example, Credential Manager for ProtectTools can use the embedded chip as an authentication factor when the user logs on to Windows. On select models, the embedded security chip also enables enhanced BIOS security features accessed through BIOS Configuration for ProtectTools.

For more information, refer to the Embedded Security for ProtectTools online Help or the *HP ProtectTools Embedded Security Guide*.

Credential Manager for ProtectTools

Credential Manager for ProtectTools has security features that provide protection against unauthorized access to your notebook, including the following:

■ Alternatives to passwords when logging on to Microsoft Windows, such as using a smart card to log on to Windows.

■ Single sign-on capability that automatically remembers credentials for Web sites, applications, and protected network resources.

■ Support for optional security devices, such as smart cards and biometric fingerprint readers.

For more information, refer to the Credential Manager for ProtectTools online Help.

BIOS Configuration for ProtectTools

BIOS Configuration for ProtectTools provides access to BIOS security and configuration settings within the HP ProtectTools Security Manager application, which gives users better access to system security features that are managed by the system BIOS.

With BIOS Configuration for ProtectTools, you can

■ Manage power-on user passwords and administrator passwords.

■ Configure preboot authentication features, such as smart card passwords and power-on passwords.

■ Enable and disable hardware features (such as the enable CD-ROM boot feature).

■ Configure boot options, which includes disabling the ability to boot to drives other than the primary hard drive.

✎ Many of the features in BIOS Configuration for ProtectTools are also available in Computer Setup. For additional information, refer to Chapter 13, "Computer Setup."

For more information, refer to the BIOS Configuration for ProtectTools online Help.

Smart Card Security for ProtectTools

With Smart Card Security for ProtectTools, you can

■ Access optional smart card security features. Security enhancements are supported by the optional HP ProtectTools Smart Card and an optional supported reader, such as the HP PC Card Smart Card Reader.

■ Initialize an optional HP ProtectTools Smart Card so that it can be used with Credential Manager for ProtectTools.

■ Work with the BIOS to enable optional smart card authentication in a preboot environment, and to configure separate smart cards for an administrator and a user. This requires a user to insert the smart card and optionally enter a PIN prior to allowing the operating system to load. For more information on BIOS security features, refer to Chapter 13, "Computer Setup."

■ Set and change the password used to authenticate users of the optional smart card.

■ Back up and restore credentials stored on the optional smart card.

For more information, refer to the Smart Card Security for ProtectTools online Help.

Optional Security Cable

✎ Security solutions are designed to act as deterrents. These deterrents may not prevent a product from being mishandled or stolen.

To install a security cable:

1. Loop the security cable around a secured object.
2. Insert the key ❶ into the cable lock ❷.
3. Insert the cable lock into the security cable slot ❸, and lock the cable lock with the key.

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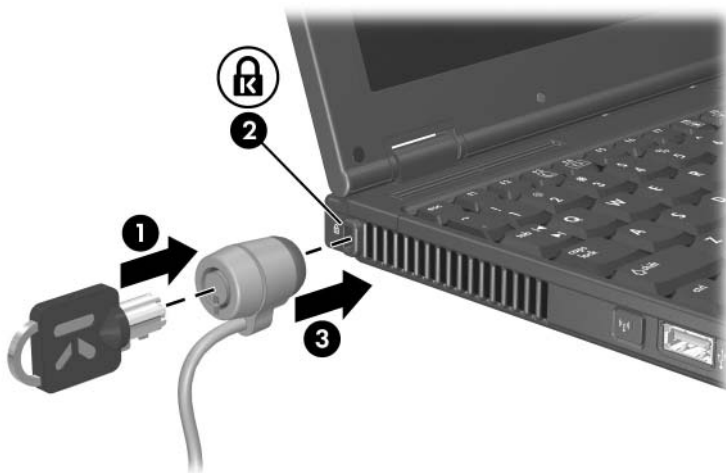
Computer Setup

Computer Setup is a preinstalled, ROM-based utility that can be used even when the operating system is not working or will not load. If the operating system is working, the notebook restarts the operating system after you exit Computer Setup.

✎ Pointing devices are not supported in Computer Setup; you must use the keyboard to navigate and make selections.

✎ An external keyboard connected by USB can be used with Computer Setup only if USB legacy support is enabled. For more information about USB, refer to Chapter 9, "USB Devices."

The menu tables later in this chapter provide an overview of Computer Setup options.

Computer Setup Access

The information and settings in Computer Setup are accessed from the **File, Security, Tools,** and **Advanced** menus.

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ To view navigation information, press **f1.**

   ❏ To return to the **Computer Setup** menu, press **esc.**

2. Select the **File, Security, Tools,** or **Advanced** menu.

3. To exit Computer Setup, choose one of the following:

   ❏ To exit without saving any changes, use the arrow keys to select **File > Ignore changes and exit,** and then follow the instructions on the screen.

   ❏ To exit and save all the settings you have entered, use the arrow keys to select **File > Save changes and exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and take effect when the notebook restarts.

Computer Setup Defaults

To return all settings in Computer Setup to the values that were set at the factory:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ To view navigation information, press **f1.**

2. Use the arrow keys to select **File > Restore defaults.**

3. Select the **Restore Defaults** check box.

4. To confirm the restoration, press **f10.**

5. Select **File > Save changes and exit,** and then follow the instructions on the screen.

When the computer restarts, the factory settings are restored, and any identification information you have entered is saved.

File Menu

Select	To Do This
System Information	■ View identification information about the notebook and any battery packs in the system. ■ View specification information about the processor, memory and cache size, video revision, keyboard controller version, and system ROM.
Save to floppy	Save system configuration settings to a diskette.
Restore from floppy	Restore system configuration settings from a diskette.
Restore defaults	Replace configuration settings in Computer Setup with factory default settings. (Identification information is retained.)
Ignore changes and exit	Cancel changes entered during the current session. Then exit and restart the notebook.
Save changes and exit	Save changes entered during the current session. Then exit and restart the notebook. The changes you save are in effect when the notebook restarts.

Security Menu

Select This Option	To Do This
Administrator password	Enter, change, or delete an HP Administrator password.
Power-On password	Enter, change, or delete a power-on password.
Password options	■ Enable/Disable stringent security. ■ Enable/Disable required password on restart.
DriveLock passwords	Enable/disable DriveLock; change a DriveLock user or master password. ✎ DriveLock settings are accessible only when you enter Computer Setup by turning on (not restarting) the notebook.
Smart Card Security	Enable/disable power-on support for smart cards. ✎ This feature is supported by select smart card readers only.

(Continued)

Select This Option	To Do This
Embedded Security	■ Enable/Disable the embedded security chip.
	■ Restore embedded security chip to factory settings.
	■ Enable/Disable power-on authentication support.
	■ Enable/Disable automatic DriveLock.
	■ Reset power-on authentication credential.
	✎ Embedded Security settings are accessible only if the notebook is equipped with an embedded security chip.
Device security	■ Enable/Disable devices in the system.
	■ Enable NIC for inclusion in MultiBoot.
System IDs	Enter user-defined identification values.

Tools Menu

Select	To Do This
HDD Self Test options	Run a quick or comprehensive self-test on any hard drive in the system.
Battery Information	View information about any battery packs in the notebook.
Memory Check	■ Run a self-test on memory modules in the notebook.
	■ View information about memory modules installed in the notebook.

Advanced Menu

Select	To Do This
Language (or press **f2**)	Change the Computer Setup language.
Boot options	■ Enable/Disable MultiBoot, which sets a startup sequence that can include most bootable devices and media in the system. For details, refer to Appendix B, "MultiBoot." ■ Set the boot order.
Device options	■ Swap the functions of the **fn** key and left **ctrl** key. ■ Enable/Disable multiple pointing devices at startup. (To set the notebook to support only a single, usually nonstandard, pointing device at startup, select **Disable.**) ■ Enable/Disable USB legacy support for a USB keyboard, mouse, and hub. When USB legacy support is enabled: ❐ A USB keyboard, mouse, and hub work even when a Windows operating system is not loaded. ❐ The notebook starts from a bootable hard drive, diskette drive diskette, or CD, CD-RW, or DVD inserted into a drive connected by a USB connector to the notebook or to an optional docking device. ■ Select a parallel port mode: EPP (Enhanced Parallel Port), standard, bidirectional, or ECP (Enhanced Capabilities Port). ■ Enable/Disable all settings in the **SpeedStep** window. (When Disable is selected, the notebook runs in Battery Optimized mode.)

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Software Update and Recoveries

Software Updates

For optimal notebook performance and to make sure your notebook remains compatible with changing technologies, HP recommends that you install the latest versions of HP software as they become available.

To update HP software:

1. Prepare for any update by identifying your notebook type, series or family, and model; refer to "Accessing Notebook Information" later in this chapter. Prepare for a system ROM update by identifying (through the Computer Setup utility) the ROM version currently installed on the notebook.

2. Access the updates through your local HP Web site or the *Support Software* CD (purchased separately).

3. Download and install the updates.

✎ The notebook system ROM stores the BIOS. The BIOS determines how the notebook hardware interacts with the operating system and external devices and also supports such notebook services as time and date.

✎ If your notebook connects to a network, HP recommends that you consult with your network administrator before installing any software updates, especially system ROM updates.

Obtaining the Support Software CD

The *Support Software* CD provides HP software updates and installation instructions. The CD includes device drivers, ROM updates, and utilities.

To purchase the current *Support Software* CD or a subscription that provides both the current version and future versions of the CD, visit the HP Web site at http://www.hp.com.

Accessing Notebook Information

To access the updates for your notebook, the following information will be needed:

■ The product *category* is Notebook.

■ The product *family* name and *series* number are printed in the lower-right corner of the display bezel.

■ *Model* information is provided on the serial number label on the bottom of the notebook.

To determine whether available ROM updates contain later ROM version than currently installed on the notebook, you need to know the version of the system ROM currently installed.

To display ROM information in Computer Setup:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Select **File > System Information.** (The system ROM information is displayed.)

3. To exit Computer Setup without changing any settings, use the arrow keys to select **File > Ignore changes and exit,** and then follow the instructions on the screen. (After Computer Setup closes, the notebook restarts in Windows.)

For information about using Computer Setup, refer to the "Computer Setup" chapter.

Internet Software

Most software on the HP Web site is packaged in compressed files called a SoftPaqs. Some ROM updates may be packaged in compressed files called ROMPaqs.

Most download packages contain a file named Readme.txt. A Readme.txt file contains information regarding installing and troubleshooting the file.

Downloading System ROM

$\triangle$ **CAUTION:** To prevent an unsuccessful installation, download and install the system ROM only while the notebook is connected to reliable external power using the AC adapter. Do not download or install the system ROM while the notebook is running on battery power, docked in an optional port replicator, or connected to an optional power source. During the download and installation:

■ Do not unplug the notebook from the electrical outlet.
■ Do not shut down the notebook.
■ Do not remove or insert a drive.

To download and install a system ROM:

1. Access the page on the HP Web site that provides software for your notebook.

2. Follow the instructions on the screen to locate the system ROM you want to download.

3. At the download area:

   a. Write down the information (date and name) of any update that is later than the system ROM currently installed on your notebook.

   b. Select the software you want and follow the download instructions on the screen.

4. When the download is complete, open Windows Explorer.

5. In Windows Explorer, select **My Computer,** and then the hard drive designation (usually drive C), and then the folder to which you saved the downloaded item.

6. In the folder, double-click the name or number of the software package containing the system ROM update. (The system ROM installation begins.)

7. To complete the installation, follow the instructions on the screen.

✎ After a message on the screen reports a successful installation, you can delete the downloaded package from the folder.

Downloading Software

To download and install other software:

1. Access the page at the HP Web site that provides software for your notebook.

2. Follow the instructions on the screen to find the software you want to update.

3. At the download area, select the software you want and follow the downloading instructions on the Web page.

4. When the download is complete, open Windows Explorer.

5. In Windows Explorer, select **My Computer,** and then the hard drive designation (usually drive C), and then the folder to which you saved the downloaded item.

6. In the folder, double-click the name or number of the software package containing the update.

7. Double-click the file that includes an .exe extension—for example, Filename.exe.(The installation begins.)

8. To complete the installation, follow the instructions on the screen.

✎ After a message on the screen reports a successful installation, you can delete the download package from the folder.

System Recovery

The notebook system recovery process provides several ways to recover system functionality. The *Application and Driver Recovery* disc and the *Operating System* disc enable you to recover or repair your notebook without losing personal data. The *Operating System* disc also allows you to reinstall the operating system software provided with the notebook.

✎ For best results, attempt to recover optimal notebook functionality by using the following procedures *in the order described here.*

Safeguarding Your Data

Software or devices added to the notebook can cause your system to become unstable. To safeguard your documents, store personal files in the My Documents folder and periodically create a backup copy of My Documents.

Altiris Local Recovery

Altiris Local Recovery protects the files on your computer by storing copies of files, called *snapshots*. If files on your computer are accidentally deleted or corrupted, you can easily restore the files yourself. You can also roll back your complete file system to a previous state.

Altiris Local Recovery provides protection of files by backing up files to a hidden Altiris recovery partition. When you install the software, the Recovery Agent Partition Wizard guides you through the process of creating the recovery partition. After the partition is created, the notebook restarts and creates the first snapshot. After the snapshot is created, the notebook restarts and the software makes the snapshots available for recovery through Windows.

Local Recovery is installed with a default schedule so that snapshots of your files are automatically taken on a regular basis. You can change the snapshot schedule. For more information, see the Altiris Local Recovery Help.

You can access your snapshots in the Altiris Recovery Agent folder. Right-click the Altiris Recovery Agent icon on your Desktop, and then select **Open.** To restore one of the snapshots, select the snapshot to restore, and then drag the file to the appropriate location on your hard drive.

For more information on configuring and using Altiris Local Recovery, visit the HP Web site at http://www.hp.com/go/easydeploy or open the software and select **Help** on the menu bar.

Setting System Restore Points

Notebooks with Windows XP operating systems provide the option of setting *system restore* points (checkpoints) daily as you change your personal settings. The notebook may also set restore points when you add new software or devices. You should periodically set system restore points when the notebook is functioning at optimal performance and before installing new software or devices. This enables you to return to a previous configuration restore point if you encounter problems.

To set a system restore point:

1. Select **Start > Help and Support > System Restore.**

2. Select **Create a restore point,** and then follow the instructions on the screen.

To restore the notebook to a previous date and time when it was functioning optimally:

1. Make sure the notebook is connected to a reliable AC outlet through the AC adapter.

2. Select **Start > Help and Support > System Restore.**

3. Select **Restore my computer to an earlier time,** and then follow the instructions on the screen.

Repairing or Reinstalling Applications

All applications preinstalled or preloaded on your notebook can be repaired or reinstalled by using the *Application and Driver Recovery* disc.

✎ If you have not reinstalled your operating system, some applications preloaded on your notebook, such as those available in the Software Setup utility, can also be repaired or reinstalled from your hard drive.

The application reinstallation process repairs or replaces corrupted system files within the application and reinstalls deleted system files within the application.

■ In most cases: If the application you are repairing or reinstalling is still installed on your notebook, the reinstallation process does not affect your settings within the application.

■ In all cases: If an application has been deleted from your notebook, the reinstallation process reinstalls the application or utility to the factory image.

Reinstalling Applications from Your Hard Drive

To reinstall a preloaded application or utility from your hard drive:

» Select **Start > All Programs > Software Setup,** and then follow the instructions on the screen. (When you are prompted to select the software you want to reinstall, select or clear the appropriate check boxes.)

Repairing the Operating System

To attempt an operating system repair without deleting your personal data, use the *Operating System* disc that was shipped with the notebook:

1. Connect an optional external MultiBay or MultiBayII to the notebook.

2. Connect the notebook to external power and turn on the notebook.

3. Immediately insert the *Operating System* disc into the optical drive of an optional external MultiBay or MultiBay II.

4. Restart the notebook.

5. When prompted, press any key to boot from the disc. (After a few minutes, the Setup Wizard opens.)

   ✎ On the "Welcome to Setup" page do not press **R** (step 8 in this procedure) until you have completed steps 6 and 7.

6. Press **enter** to continue. (A Licensing Agreement page is displayed.)

7. Press **f8** to accept the agreement and continue. (The "Setup" page is displayed.)

8. Press **R** to repair the selected Windows installation. (The repair process begins. This process may take up to 2 hours to complete. The notebook restarts in Windows after the process is complete.)

Reinstalling the Operating System

⚠ **CAUTION:** To prevent the loss of all of your personal data, back up your data before reinstalling the operating system. Personal data and any software you have installed on the notebook will be lost during the operating system reinstallation process.

If other recovery efforts do not successfully repair the notebook, you can reinstall the operating system.

To reinstall the operating system:

1. Connect an optional external MultiBay or MultiBayII to the notebook.

2. Connect the notebook to external power and turn on the notebook.

3. Immediately insert the *Operating System* disc into an optical drive of an optional external MultiBay or MultiBay II.

4. Restart the notebook.

5. When prompted, press any key to boot from the disc. (After a few minutes, the Setup Wizard opens.)

6. Press **enter** to continue. (A Licensing Agreement page is displayed.)

7. Press **f8** to accept the agreement and continue. (The "Setup" page is displayed.)

8. Press **esc** to continue installing a new copy of the operating system instead of repairing it.

9. Press **enter** to set up the operating system.

10. Press **C** to continue setup using this partition.

11. Select **Format the partition using the NTFS file system (Quick)** and press **enter.**

⚠ **CAUTION:** Formatting this drive will delete all current files.

---

12. Press **F** to format the drive. (The reinstallation process begins. This process may take up to 2 hours to complete. The notebook restarts in Windows when the process is complete.)

Reinstalling Device Drivers and Other Software

After the operating system installation process is complete, you must reinstall drivers.

To reinstall drivers, use the *Application and Driver Recovery* disc included with the notebook:

1. While running Windows, insert the *Application and Driver Recovery* disc into the optical drive of an optional external MultiBay or MultiBay II.

   If you do not have autorun enabled, select **Start > Run.** Then type D:\SWSETUP\APPINSTL\SETUP.EXE (where *D* indicates the optical drive).

2. Follow the on-screen instructions for installing the drivers.

After the drivers are reinstalled, you must reinstall any software you added to the notebook. Follow the installation instructions provided with the software.

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Notebook Care

⚠ **WARNING:** To reduce the risk of electric shock or damage to internal components, do not allow liquids to drip onto the notebook keyboard.

⚠ **CAUTION:** To prevent possible damage to the display, do not place anything on top of the notebook even when it is in the carrying case.

⚠ **CAUTION:** To prevent overheating, do not obstruct the vents. Do not allow a hard surface, such as an adjoining optional printer, or a soft surface, such as fabric or carpet, to block the airflow.

Your notebook is designed as a durable product. To maintain its performance and promote longevity, follow these guidelines:

■ Carry and store your notebook in a portable carrying case.

■ Keep Zip disks, and modular disk drives away from magnetic fields, which can erase your data.

■ Keep liquids and excessive moisture away from your notebook and keyboard to prevent costly repairs.

■ Avoid exposing your notebook to direct sunlight, extreme temperatures, or ultraviolet light for extended periods of time.

■ Use your notebook only on a solid, flat surface. Make sure that vents, which cool internal components, are unobstructed.

■ If the notebook will be idle for a week or more, shut it down.

■ If the notebook will be disconnected from external power for more than 2 weeks:

❏ Shut down the notebook.

❏ Remove all battery packs and store them in a cool, dry place.

Temperature

⚠ **WARNING:** To avoid potential discomfort or burns, do not block the air vents or use the notebook on your lap for extended periods. The notebook is designed to run demanding applications at full power. As a result of increased power consumption, it is normal for the notebook to feel warm or hot when used continuously. The notebook complies with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950).

Cleaning

⚠ **WARNING:** To reduce the risk of electric shock, always disconnect the notebook from the power outlet and disconnect peripherals before attempting to clean your notebook or any of its components.

⚠ **WARNING:** To prevent permanent damage to your notebook, do not spray liquids on the display, the keyboard, or the exterior of your notebook.

Keyboard

Clean the keyboard regularly to prevent keys from sticking and to remove dust, lint, and particles that can become trapped beneath the keys. Ideally, use a can of compressed air with a straw extension to blow air under and around the keys.

⚠ **CAUTION:** To prevent damage, do not clean the keyboard with liquids of any kind. Do not use a regular vacuum cleaner to clean the keyboard, because you may deposit normal household debris on the surfaces, rather than remove it.

Display

⚠ **CAUTION:** To prevent damage to your notebook, never spray water, cleaning fluids, or chemicals on the screen.

To remove smudges and lint, frequently clean your display with a soft, damp, lint-free cloth. If the screen requires additional cleaning, use an antistatic screen cleaner or premoistened antistatic wipes.

TouchPad

Grease and dirt on the TouchPad can cause your cursor to jump around on the display screen. To avoid this, wash hands frequently when using the notebook and clean the TouchPad with a damp cloth.

External Mouse

Keeping an external mouse clean can substantially improve its performance and prevent loss of mouse pointer control. To clean an external mouse, complete the following steps:

1. Turn the mouse over and rotate the circular plate about 1/4-inch counterclockwise until it pops loose. Most mice have an arrow to indicate the direction to turn the plate.
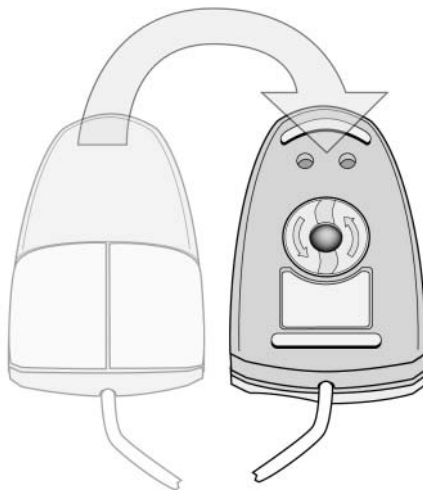
2. Remove the ball from your mouse and clean it with an antistatic wipe or a lint-free cotton cloth.
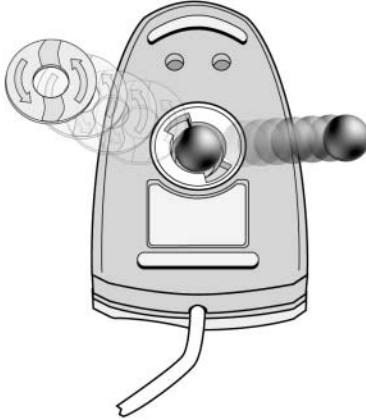
3. Spray the inside of the mouse with compressed air or clean it with a noncotton swab to remove loose debris and dust.
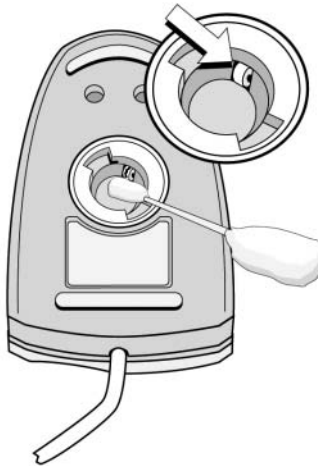
4. Replace the ball and the bottom plate.

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Travel and Shipping

Preparation for Travel and Shipping

To prepare the notebook for shipping or traveling:

1. Back up your work.

2. Turn off and then disconnect all external devices.

3. Shut down the notebook.

4. If the notebook will be disconnected from an external power source for more than 2 weeks, remove all battery packs and store them in a cool, dry place.

5. If you are shipping the notebook, place it in the original packing box or similar protective packaging and label the package "FRAGILE."

Tips for Traveling with Your Notebook

■ Take along a backup of your work. Keep the backup separate from the notebook.

■ When traveling by air, carry your notebook as hand baggage. Do not check it in with the rest of your luggage.

■ Do not expose the notebook or diskettes to a magnetic security detector.

❏ The security device that examines carry-on items placed on a conveyor belt uses x-rays and is safe for the notebook and diskettes.

❏ The walk-through security device and the handheld security wands are magnetic and may damage the notebook or diskettes.

■ If you plan to use the notebook during a flight, check with the airline in advance. In-flight notebook use is at the discretion of the airline.

■ If your notebook has a GSM device, such as the GPRS Multiport Module, you must turn off the GSM device on your notebook before boarding and keep it turned off if you plan to use your notebook during the flight.

■ If you are traveling internationally:

⚠ **WARNING:** To reduce the risk of electric shock, fire, or damage to the equipment, do not attempt to power the notebook with a voltage converter kit sold for appliances.

❏ Consult with Customer Care about power cord and adapter requirements for each location in which you plan to use the notebook. (Voltage, frequency, and plug configurations vary.) Refer to the *Worldwide Telephone Numbers* booklet (English only) to contact Customer Care for help and support.

❏ Check the computer-related customs regulations for each country on your itinerary.

A

Specifications

Operating Environment

The operating environment information in the following table might be helpful if you plan to use or transport the notebook in extreme environments.

Factor	Metric	U.S.
Temperature		
Operating (not writing to optical disc)	0°C to 35°C	32°F to 95°F
Operating (writing to optical disc)	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	10% to 90%
Nonoperating	5% to 95%	5% to 95%
Maximum altitude (unpressurized)		
Operating (14.7 to 10.1 psia)	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating (14.7 to 4.4 psia)	-15 m to 12,192 m	-50 ft to 40,000 ft

Rated Input Power

The power information in this section might be helpful if you plan to travel internationally with the notebook.

The notebook operates on DC power, which can be supplied by an AC or a DC power source. Although the notebook can be powered from a stand-alone DC power source, it is strongly recommended that the notebook be powered only with an AC adapter or DC power cord supplied or approved by HP.

The notebook is capable of accepting DC power within the following specifications:

Input Power	Rating
Operating voltage	18.5 V dc @ 3.5 A - 65 W
Operating current	3.5 A

This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 Vrms.

B

MultiBoot

A bootable medium or network interface card (NIC) contains files that the notebook needs to start properly and operate. The MultiBoot utility, disabled by default, enables you to identify the devices and control the sequence in which the system attempts to boot from those devices as it starts up your notebook.

Bootable devices include optical drive discs, such as CDs or DVDs, bootable diskettes, or NICs.

✎ Some devices, including USB devices and NICs, must be enabled in Computer Setup before they can be included in the boot sequence. For more information, refer to "Bootable Devices in Computer Setup" in this chapter.

Default Boot Sequence

By default, when more than one bootable device is in the system, the notebook chooses the startup device by searching enabled devices and locations in a predetermined sequence.

On every boot, the system looks for bootable drive A devices first. If it fails to find a bootable drive A device, it searches for bootable drive C devices. Drive A devices include optical drives and diskette drives. Drive C devices include optical drives and primary hard drives.

The primary hard drive can only boot as drive C. The NIC does not have a drive letter assigned to it.

✎ An optical drive device (such as a CD-ROM drive) can boot either as drive A or drive C, depending on the format of the CD. Most bootable CDs boot as drive A. If you have a CD that boots as the C drive, the system will boot the diskette drive before it boots the CD.

By default, the notebook selects the startup device by searching enabled devices and locations in a predetermined sequence.

You can change the sequence in which the notebook searches for a startup device by enabling MultiBoot and entering a new startup sequence, also called a *boot order*. Or, you can use MultiBoot Express to set the notebook to prompt you for a startup location each time the notebook is started or restarted.

The list below describes the default sequence in which drive numbers are assigned. (The actual startup sequence varies by configuration.)

■ Default sequence for devices that boot as drive A:

  a. Optical drive in an optional docking device MultiBay or in an external MultiBay that contains a disc that boots as drive A.

  b. Diskette drive in an optional docking device or in an external MultiBay.

■ Default sequence for devices that boot as drive C:

  a. An optical drive in an optional docking device MultiBay or in an external MultiBay that contains a disc that boots as drive C.

  b. Hard drive in the notebook primary hard drive bay.

  c. Hard drive in an optional docking device MultiBay or in an external MultiBay.

✎ Since no drive letter is associated with the NIC, changing the boot order of a NIC does not affect drive letters of the other devices.

Bootable Devices in Computer Setup

The notebook can start up from a USB device or the NIC only if that device has been enabled for inclusion in MultiBoot.

To enable a device or location for inclusion in MultiBoot:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. To enable bootable media in USB drives or in drives inserted into an optional docking device, use the arrow keys to select **Advanced > Device options.** Then select **Enable USB legacy support.**

   – or –

   To enable a NIC, select **Security > Device security,** and then select **Internal network adapter boot.**

3. Save your preferences and exit Computer Setup by using the arrow keys to select **File > Save changes and exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup and they take effect when the notebook restarts.

✎ To connect a NIC to a Preboot eXecution Environment (PXE) or Remote Program Load (RPL) server during startup without using MultiBoot, quickly press **f12** when the "Network Service Boot" message appears in the lower-right corner of the screen.

MultiBoot Results

Before changing the startup sequence, consider the following:

■ When the notebook restarts after the boot order has been changed, it considers only the first device of each drive type when searching for a startup device (except for optical devices).

For example, assume that the notebook is connected to an optional docking device containing an optical drive and a diskette drive. In the default boot sequence, the optical drive comes before the diskette drive. If the system fails to boot to the optical drive (either because it does not contain a disc or because the disc is not bootable) it does not try to boot to the diskette drive. Instead, it tries to boot to the first hard drive device present in the system. However, if there are two optical devices, and the first optical device does not boot, the system tries to boot to other optical devices in the system.

■ Changing the boot sequence also changes the logical drive designations. For example, if you start up from a CD-ROM drive with a disc that boots as drive C, that CD-ROM drive becomes drive C and the hard drive in the hard drive bay becomes drive D.

■ Starting up from a NIC does not affect logical drive designations because no drive letter is associated with the NIC.

■ Drives in an optional docking device are treated like external USB devices in the boot sequence and must be enabled in Computer Setup.

MultiBoot Preferences

There are two ways to set MultiBoot sequences:

■ Set a new default boot sequence that the notebook uses each time it starts up.

■ Use variable boot sequences using MultiBoot Express. This feature prompts you for a startup device each time the notebook is started or restarted.

Setting a New Default Boot Sequence

Use Computer Setup to set a startup sequence that the notebook uses each time it is started or restarted:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Advanced > Boot options**, and then press **enter.**

3. Toggle the **MultiBoot** field to **Enable.**

4. Toggle the **Boot Order** fields to the boot sequence that you prefer.

5. Save your preferences and exit Computer Setup by using the arrow keys to select **File > Save changes and exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup, and they take effect when the notebook restarts.

Setting a MultiBoot Express Prompt

Use Computer Setup to set the notebook to display the MultiBoot startup location menu each time the notebook is started or restarted:

1. Open Computer Setup by turning on or restarting the notebook. Press **f10** while the F10 = ROM Based Setup message is displayed in the lower-left corner of the screen.

   ❏ To change the language, press **f2.**

   ❏ For navigation instructions, press **f1.**

2. Use the arrow keys to select **Advanced > Boot options,** and then press **enter.**

3. In the **Express Boot Popup Delay (Sec)** field, select the length of time in seconds that you want the notebook to display the startup location menu before it defaults to the current MultiBoot setting (when 0 is selected, the Express Boot startup location menu is not displayed.)

4. Save your preferences and exit Computer Setup by using the arrow keys to select **File > Save changes and exit,** and then follow the instructions on the screen.

Your preferences are set when you exit Computer Setup, and they take effect when the notebook restarts.

Entering MultiBoot Express Preferences

When the **Express Boot** menu is displayed during startup:

■ To specify a startup location from the **Express Boot** menu, select your preference within the allotted time, and then press **enter.**

■ To prevent the notebook from defaulting to the current MultiBoot setting, press any key before the allotted time expires. The notebook will not start up until you select a startup location and press **enter.**

■ To allow the notebook to start up according to the current MultiBoot settings, wait for the allotted time to expire.

C

Client Management

Client Management Solutions provides standards-based solutions for managing client (user) desktop, workstation, and notebook computers in a networked environment.

The key capabilities and features of client management are

- Initial software image deployment.

- Remote system software installation.

- Software management and updates.

- ROM updates.

- Tracking and security of computer assets (the hardware and software installed on the computer).

- Fault notification and recovery of certain system software and hardware components.

✎ Support for specific features described in this chapter may vary, depending on the computer model and/or version of management software installed on your computer.

Configuration and Deployment

HP computers come with a preinstalled system software image. The initial software image is configured during the first-time setup of the computer. After a brief software "unbundling" occurs, the computer is ready to be used.

A customized software image can be deployed (distributed) by

■ Installing additional software applications after unbundling the preinstalled software image.

■ Using software deployment tools, such as Altiris Deployment Solutions, to replace the preinstalled software with a customized software image.

■ Using a disk cloning process to copy the contents from one hard drive to another.

The deployment method you should use depends on your organization's technology environment and processes. Visit the HP Web site at http://www.hp.com/go/pcsolutions for more information on selecting the best deployment method for your organization.

✎ The system recovery discs, Computer Setup utility, and other system features provide further assistance with recovery of system software, configuration management and troubleshooting, and power management.

Software Management and Updates

HP provides several tools for managing and updating software on client PCs—HP Client Manager Software, an Altiris solution; Altiris Local Recovery; Altiris PC Transplant Pro; and System Software Manager.

HP Client Manager Software

HP Client Manager Software (HP CMS) integrates HP Intelligent Manageability technology within Altiris software. HP CMS provides superior hardware management capabilities for HP devices that include:

■ Detailed views of hardware inventory for asset management.

■ *PC health check* monitoring and diagnostics.

■ Web-accessible reporting of business-critical details such as machines with thermal warnings, and memory alerts.

■ Remote updating of system software such as device drivers and ROM BIOS.

✎ Additional functionality can be added when HP CMS is used with optional Altiris Solutions software (purchased separately). For more information, refer to "Altiris Local Recovery."

For more information on HP Client Manager, visit the HP Web site at http://www.hp.com/go/easydeploy.

When HP Client Manager Software (installed on a client computer) is used with Altiris Solution software (installed on an administrator computer), HP CMS provides increased management functionality. HP Client Manager provides centralized hardware management of HP client devices for the following IT life cycle areas:

■ Inventory and Asset Management

❏ Software license compliance

❏ Computer tracking and reporting

❏ Computer lease contract information and fixed asset tracking

■ System Software Deployment and Migration

❏ Windows 2000/XP migration

❏ System deployment

❏ Personality (personal user settings) migration

■ Help Desk and Problem Resolution

❏ Managing Help Desk tickets

❏ Remote troubleshooting

❏ Remote problem resolution

❏ Client disaster recovery

■ Software and Operations Management

❏ Ongoing client management

❏ HP system software deployment

❏ Application self-healing (the ability to identify and repair certain application problems)

Altiris Solutions software provides easy-to-use software distribution capabilities. On selected desktop and notebook models, an Altiris management agent is included as part of the preloaded software. This agent enables communication with the Altiris Solutions software, which can be used to complete new hardware deployment or personality migration to a new operating system using easy-to-follow wizards.

When Altiris Solutions software is used in conjunction with System Software Manager or the HP Client Manager, administrators can also update ROM BIOS and device driver software from a central console.

For more information, visit the HP Web site at http://www.hp.com/go/easydeploy.

Altiris PC Transplant Pro

Altiris PC Transplant Pro allows you to preserve old settings, preferences, and data and migrate them to a new environment quickly and easily.

For more information, visit the HP Web site at http://www.hp.com/go/easydeploy.

System Software Manager

System Software Manager (SSM) lets you remotely update system-level software on multiple systems simultaneously. When executed on a client computer, SSM detects both hardware and software versions, and then updates the appropriate software from a central repository, known as a file store. Driver versions that are supported by SSM are denoted with a special icon on the HP driver download Web site and on the *Support Software* CD. To download the utility or to obtain more information on SSM, visit the HP Web site at http://www.hp.com/go/ssm.

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